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The Psycholinguistic Determinants of Displaced Subjects and Objects

by

Darrell N. Williams ©

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfilment of the requirements for the degree of Doctor of Philosophy

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Abstract

This study provides a unified analysis of discourse topics, grammatical subjects, preposed objects, and existential *there* sentences. Previous analyses of these constructions have tended to treat preposed objects and existential *there* sentences as unrelated constructions. Furthermore these constructions have been analyzed almost exclusively from either a generative or functional perspective. The analysis presented here, however, provides a psycholinguistic investigation of these constructions. Moreover, it challenges the established claim that the distribution of preposed objects and post-verbal NPs is motivated by purely pragmatic factors. Instead, it is argued that these constructions are motivated by limitations in the cognitive resources involved in the processing of language. These limitations are expressed by the *light subject constraint* and the *one new idea constraint* found in previous analyses.

The data used in this study are taken from a variety of sources. The first source is a corpora of written data taken from a set of narrative texts. The analysis of this data provides the foundation of this study and indicates that speakers prefer grammatical subjects to be animate, definite, and topic related. Next, a production task along with several forced choice paradigms are used to investigate the relationship between discourse topics and preposed objects and post-verbal NPs of existential *there* sentences. It is demonstrated that the noun phrases occupying these grammatical roles are not necessarily topic-related nor do they consistently tend to be animate or definite. The results obtained from these tasks also indicate that referentiality is more closely associated with grammatical role than either animacy or definiteness.

Finally, this study challenges the notion that the various levels of linguistic representation are autonomous. Rather, it demonstrates the importance of an integrated approach to the study of language. It also emphasizes the value of psycholinguistic methodologies and the need to explore the role of cognitive processes used in the processing of language.

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Chapter 1 Introduction

1.0 Introduction

This study is an investigation of the relationship between discourse topics, grammatical subjects, preposed objects, and post-verbal noun phrases of existential *there* sentences. Typically, these constructions have been analyzed separately. Functionalists claim that existential *there* sentences and Y-movement are motivated by different discourse concerns. The first is typically considered a discourse device for introducing new information (Ward & Birner 1995), whereas the second either focuses on or contradicts an established topic (Prince 1981c; Givón 1984, 1995). Similarly, generative grammarians maintain that these sentences make use of different syntactic principles and, as such, address different theoretical concerns. Existential *there* sentences are typically associated with issues concerning quantification which do not affect the preposing of grammatical objects (Milsark 1977; Higgenbothom 1987). Moreover, traditional generative grammars do not make use of such supra-syntactic concepts as topic. As a result, an important generalization concerning the organization and processing of discourse has been overlooked.

In this thesis it is argued that existential *there* sentences and Y-movement provide a means for speakers to emphasize important information in a manner which is consistent with information processing constraints. Using the notions of *topic persistence* and *referential distance* as a measurement of discourse importance (Givón 1995), it will be shown that those referents which occur as either a post-verbal noun phrase (NP) in an existential *there* sentence or as a preposed object predicate information which is more important than that expressed as an object of a simple transitive sentence. It is important to note that although preposed objects and post-verbal NPs of existential *there* sentences represent important information, this information does not approach the level of importance accorded to discourse topics.

Also, and perhaps more importantly, this thesis presents evidence which strongly suggests that the functional properties attributed to grammatical subjects, preposed objects, and post-verbal NPs of existential *there* sentences dictate, to some extent, the semantic properties of these constructions. Specifically, it will be shown that speakers have an ordered preference regarding the animacy, definiteness, and referentiality of each of the constructs to be examined. Speakers' preference for the semantic properties of discourse topics are similar to those for grammatical subject but are markedly different from those for both preposed objects and post-verbal NPs of existential *there* sentences.

It is not possible to complete this study without also examining several related issues. In the following chapter I review and attempt to explicate the relation between definiteness, information status, and reference. The results obtained in this study provide evidence which contradicts the claim that existential noun phrases are, within discourse, functionally equivalent to definite NPs. The data presented here also indicate that referentiality is as important as definiteness or information status, if not more so, to the determination of preposed objects and post-verbal NPs of existential *there* sentences in English. Finally, the manner in which these claims are resolved indicates the importance of a psycholinguistic approach to the study of language and demonstrates that cognitive principles are able to capture generalizations about language processing that purely functional or generative analyses are not.

1.1 Scope of Inquiry

This section provides a brief introduction to the grammatical constructions discussed in this thesis. The syntactic, semantic and, when appropriate, pragmatic properties which define each construction/concept are explained. These discussions also present and define several terms which are used through out this study. Following this is a short discussion of the semantic properties typically associated with discourse topics and grammatical subjects. The exact relationship of these properties to the constructions investigated in this study is explored in Chapter 2.

1.1.1 Discourse Topic

Discourse topic is often defined as that which expresses what a discourse is said to be about (Kuno 1976; Li & Thompson 1981). Although this is an adequate definition of discourse topic for most purposes, it characterizes topic as a descriptive construct. A more preferential definition of topic would stress the pro-active nature of topic and its potential impact on a discourse and its constituent clauses. Thus a more accurate definition of discourse topic may be that given in (1).

1. Discourse topics are the idea(s) or goal(s) which set out the temporal, spatial, emotional, and/or cognitive framework from within which a discourse is interpreted.

Based on similar definitions found in the literature (Chafe 1976; Zubin & Li 1986), the definition given in (1) indicates that discourse topic not only has functional properties, but pragmatic, and potentially syntactic, consequences.

An important property of topics is that they re-occur, or have continuity, within a discourse. Topic continuity (or *thematic continuity*) is important because it provides a discourse with *cohesion* and *coherence*. For example, the sentences presented in (2) are perceived as forming a unit of sustained discourse rather than as a collection of random, unrelated sentences.

2. Cleo ate her sandwich quickly.
   She was in a hurry to get home.
   Her sister was visiting today.

The interpretation of the sentences in (2) as a unit of discourse occurs because each sentence makes reference to the same topic, which in this case involves *Cleo*. When a text expresses unity between propositions, such as in (2), it is said to be cohesive. When texts are linked together through overt lexical or syntactic means, such as the repetition of lexical items or the use of anaphoric pronouns, it is said to exhibit coherence. Both cohesion and coherence are important defining characteristics of discourse and, as is shown in this study, represent important processing strategies used by speakers to comprehend discourse (Stubbs 1983).

Syntactically, what separates discourse topic, then, from the other constructs discussed in this thesis, such as grammatical subject, is that it is primarily a discourse-based concept which applies to structures above the clausal level. However, as indicated, that does not preclude it from having syntactic and semantic consequences. The exact nature of these consequences is explored in the following chapter.

1.1.2 Grammatical Subject

Grammatical subjects are often characterized as expressing the topic of a sentence. Although this seems to be in accord with many speakers' intuitions, it is not an adequate definition for linguistic analysis since it does not provide a reasonably accurate means for identifying the grammatical subject in a clause (Croft 1990). Purely syntactic or semantic definitions of grammatical subject are also inadequate since the manner in which grammatical subjects are expressed differ between languages or even within a language (Croft 1990; Comrie 1981). For example, verb agreement morphology is critical to subject identification in free word order languages such as Spanish and Biblical Hebrew (Givón 1991, Fox 1983). However, as demonstrated in (3), verb agreement morphology in English is limited to those verbs occurring the present tense with a third person subject.

3a. *John* knows / *know Harold.
b. *Clair and her brother* know / *knows Harold.
c. *Clair / All my friends* knew Harold.

In the first two sentences, the verb is in the present tense and must agree, i.e., be morphologically marked with -s, if the subject is singular. Thus we can determine that it is *John* and not *Harold* which is the subject of the sentence. However, as shown in (3c), once the verb is in the past tense, it is not marked. Thus it is necessary to adopt other means for identifying the subject of the sentence.

Because the identification of subjects requires multiple strategies, many linguists have defined subject in terms of a set of related syntactic, semantic, and morphological properties. There properties include, but are not limited to: word order, number/person agreement verb morphology, case marking, and deletability in conjoined sentences (Croft 1990; Comrie 1981). Any one or more of these properties may be relevant to any given situation. Since this study deals with grammatical subjects in English, only the properties of word order and subject/verb agreement are of concern. The relevance of subject-verb agreement to identifying grammatical subjects is presented above. The importance of word order in identifying grammatical subject will be deferred to the discussion of existential *there* sentences.

Typically, grammatical subjects in English are not considered as being either identifiable or restricted by semantic properties. That is, there is no unique semantic property which governs their occurrence. As shown in (4), grammatical subjects may be either definite or indefinite and animate or inanimate.

4a. *The store* is closed on Sunday.
b. *A bear* attacked the hiker.
c. *The cards* are on the table.
d. *Policemen* intercepted the bank robber.

Each of the sentences in (4) contain grammatical subjects (shown in italics) which differ in their animacy and definiteness. Yet all are equally acceptable. However, it has been widely reported that grammatical subjects overwhelmingly tend to be definite when occurring within a discourse (Kuno 1972, 1976; Givón 1978, 1991, 1995; Chafe 1987, 1994). Since there is no semantic constraint inherent in grammatical subjects which can account for this fact, it would seem, then, that any such constraint would be the result of grammatical subjects interacting with other linguistic properties. It is explicating this interaction which occupies much of the discussion in Chapter 2.

1.1.3 Existential *There* Sentences

Existential *there* sentences are those sentences which contain an existential *there* followed by the copula *to be* and a nominal proposition as in (5).

5a. There are lions in Africa.
b. There is a new sheriff in town.
c. There are three new stores in the mall.

The pre-verbal *there* of these sentences is non-referring and seems to be used only to assert the existence of the post-verbal NP (Milsark 1977). It is important to distinguish these constructions from those in (6).

6a. There are your mittens on the table.
b. There is the phone book.
c. There is my computer.

The *there* used in these sentences is deictic, referring to some place presumably within sight of the speaker. The elements of these sentences share a different underlying relationship than those of existential *there* sentences and as such do not exhibit the same syntactic and semantic characteristics.

As stated above, a characteristic property of grammatical subjects is their position within the clause. In English, grammatical subjects tend to immediately precede the verb or verb phrase of the clause in which they occur. However, the sentences presented in (5) and (6) above seem to present an exception to this rule. In each of these sentences, the verb morphology is in agreement with the post-verbal noun phrase. As shown in (7) non-existential *there* sentences can be re-ordered to reflect the canonical word order associated with English.

7a. Your mittens are there on the table.
b. The phone book is there.
c. My computer is there.

8a. *Lions are there in Africa.
b. *A new sherif in town is there.
c. *Three new stores in the mall are there.

However, as demonstrated in (8), existential *there* sentences do not exhibit the same flexibility in word order.

A further property of existential *there* sentences is that they appear to disallow definite noun phrases in post-verbal position (Milsark 1977; Safir 1987; Heim 1987; Koopman 1998). Such a restriction would account for the acceptability of the sentences in (9) and the unacceptability of those in (10),

9a. There was a telephone call for you.
b. There was a young man who asked about you.
c. There is a phone book in the bottom drawer.

10a. *There was the telephone call for you.
b. *There was the young man who asked about you.
c. *There is the phone book in the bottom drawer.

The only difference between the two sets of sentences is that those in (9) contain indefinite post-verbal NPs whereas those in (10) contain definite post-verbal NPs. However it has been pointed out that this restriction is far from absolute (Rando & Napoli 1978; Abbot 1992, 1993; Ward & Birner 1995). There are several circumstances under which the post-verbal NP of a existential there constructions may be definite. Such circumstance include, but are not limited to, when the existential *there* sentence predicates inclusion in a list, as exemplified in (11), or when they refer to a generic or habitual referent, as in (12).

11. A: Is there anyone we forgot to invite to the party?
B: Yes, there are *the Becks, the Wards, and the Clarks.*

12a. There was *the usual crowd* at the beach today.
b. There were *the usual delays* in traffic today.

It has been claimed however that these sentences are either not instances of existential *there* sentences or that the post-verbal NP is, in a discourse sense, indefinite (Rando & Napoli 1978; Abbot, Ward, & Birner 1997). The specific arguments presented in support of these claims, however, are reviewed in detail in the next chapter.

What this discussion has shown, then, is that existential *there* sentences have unique syntactic and semantic properties. This study will show that these properties are not entirely the result of syntactic or semantic principles. Rather, they are a direct consequence of the construction's overall function in discourse. Specifically, it will be shown that these sentences are used to emphasize otherwise unimportant information which, because of topic-comment structure, tends to be indefinite. Moreover, because of their structure, speakers are able to emphasize the information without violating cognitive-based processing constraints.

1.1.4 Preposed Objects

As with existential *there* sentences, preposed objects have unique semantic and syntactic properties with respect to definiteness and word order. Although the placement of grammatical objects in English is less restricted than of grammatical subjects, they tend to follow the verb rather than precede it. Preposed objects, however, are grammatical objects which occur sentence initially, and, therefore, precede both the verb and the grammatical subject of the clause in which they occur. Thus the italicized noun phrases in (13) all represent instances of preposed objects.

13a. *Margaret*, I already met.
b. *The dishes*, Marcel left behind.
c. *Cats*, my dog will chase.

A characteristic semantic property of preposed objects is that they tend to be most felicitous when they represent a definite noun phrase rather than an indefinite noun phrase (Givón 1993). This is demonstrated in (14) and (15) below. The only difference between the two sets of sentences is that the preposed objects in (14) are definite noun phrases and those in (15) are indefinite noun phrases. However, only those sentences presented in (14) seem to me to be acceptable.

14a. *The ball*, Sheila wanted.
b. *The new student*, Julie nearly ran over.

15a. * *A ball,* Sheila wanted.
b. * *A new student,* Julie nearly ran over.

This particular semantic restriction does not apply to all grammatical objects. In (16), the same sentences as presented in (14) and (15) are rephrased to reflect the standard canonical order associated with grammatical objects in English.

16a. Sheila wanted *the ball.*
b. Julie nearly ran over *the new student.*
c. Sheila wanted *a ball.*
d. Julie nearly ran over *a new student.*

What is important to notice here is that all of the sentences are acceptable even though (16c) and (16d) contain indefinite grammatical objects. What this suggests then is that the semantic restriction on preposed objects is not related to its grammatical role but, rather, to the pragmatic function responsible for it occurring in sentence initial position.

As discussed in the following chapter, there are many different opinions as to the pragmatic purpose of topicalized grammatical objects. On the one hand, it has been argued that preposed objects represent information which is *contrastive*. Contrastive information is used to describe information which either contradicts a previous statement within the discourse (Harrold 1995), or refers to information which has previously been introduced into a discourse but which has not been recently mentioned (Givón 1984). On the other hand, it is claimed that preposed objects represent entities which are higher up on one or more pragmatic or semantic hierarchies than its corresponding grammatical subject. These properties and their relevance to grammatical roles is introduced in the following section.

This study neither denies nor fully supports either of the positions presented above regarding the pragmatic function of preposed objects. This thesis will present an alternative characterization of preposed objects similar to that given in Abbott (1993). This approach takes a more general view of the pragmatic function of preposed objects and argues that they have an additional function which subsumes both of the arguments outlined above. However, only by restating the pragmatic function of preposed objects in more general terms is it possible to unite these functions and relate them to a set of cognitive processing principles. Moreover, it is argued here that the apparent semantic restriction on the preposing of indefinite noun phrases is, to some extent, due to this construction's pragmatic relationship to the processing principles which determine the pragmatic functions of discourse topics and grammatical subjects.

1.1.5 Animacy, Definiteness, and Reference

Of the many semantic and pragmatic properties associated with such linguistic elements as discourse topics, grammatical subjects, and preposed objects, only animacy, definiteness, information status, and referentiality are discussed here. These three properties have been shown in numerous analyses to be relevant to the constructions which are examined in this study (Keenan 1976; Givón 1978; Timberlake 1980; Ariel 1985; Kuno 1987; Hawkins 1994).

Because animacy is the simplest of the semantic and pragmatic values to be discussed here, it will be presented first. It has been well established that in many languages NPs representing human referents are treated differently than those which refer to non-human entities (Silverstein 1976; Dixon 1979). Often NPs referring to human referents receive some type of number, case, gender, or other agreement marker which is not applied to NPs referring to non-human entities. Dixon (1979) and Silverstein (1976) have also shown that under certain circumstances these grammatical markers are applied to NPs which refer to animate but non-human entities. This has lead to the establishment of a three-way division of animacy as shown in (17).

17. Human > Non-human (but animate) > Inanimate

More recently, it has been argued that this hierarchy can be used to predict the likelihood of an entity to function as a discourse topic (Givón 1984). That is, discourse topics tend to be human rather than non-human and non-human rather than inanimate. Using a semantic hierarchy such as that in (17) makes it possible to account for the fact that although the majority of discourse topics tend to refer to human entities, it is possible for all three types of NPs to function as a discourse topic. What is important to note here, is that these traditional discussions of animacy treat it as a semantic concept which describes an inherent property of any entity. In other words, seagulls are always animate whereas rocks are always inanimate.

Recently, however, this view of animacy has been challenged. Yamamoto (1999) analyzes animacy not as a single concept inherent to every entity. Instead, he argues that animacy is a set of properties which a speaker attributes to an entity under certain circumstances. Entities which are attributed with animate-like characteristics are considered linguistically to be animate. Entities which appear to be an agent of an action are also likely to be treated as animate even if they are inanimate. Conversely, animate entities which lack certain properties may be considered inanimate. Specifically, Yamamoto claims that noun phrases which are non-referential or which represent a group of referents tend not to be treated as animate. However, as this study will demonstrate, speakers are sensitive to the difference between referential and non-referential noun phrases. Moreover, the results obtained in this study indicate that not only are speakers able to separate these two semantic concepts, but that reference is equally as important as animacy, if not more so, in determining the semantic organization of a clause.

The second semantic property of discourse topics, grammatical subjects, and preposed objects which will be discussed here is definiteness. Semantic (Hawkins 1978), structural (Koopman 1998), cognitive (Koga 1992), and multiple discourse-based definitions (Prince 1981a; Ariel 1985) of the terms *definite* and *indefinite* can be found in the literature. In some cases, these definitions overlap and will result in a consistent categorization of a NP as definite or indefinite, while in other cases they do not. For example, consider the dialogue in (18) which may have occured in local shop.

18. *The man with the green coat* bought an umbrella.
    It was black and white.

By all standards, *it* would be considered definite. Structurally, *the man* would be considered as containing an existential quantifier or operator which expresses the semantic idea that the noun phrase has unambigous reference and which is lexically represented as the definite article *the*. However, for those advocating a discourse definition, *the man* is indefinite or, more accurately, represents *new information* since it refers to an entity not previously established within the discourse (Ariel 1985). According to the typical semantic definition, which equates definiteness with uniqueness, *the man* would be definite since it refers to a particular entity which is uniquely established within the discourse (Hawkins 1978).

Although this comparison of the different approaches is oversimplified, it serves to point out that there is a need to clarify what these terms mean and how the different interpretations of this phenomena affect the interpretation of data collected in this and other analyses. As outlined in the following chapter, I make use of a modified semantic/pragmatic definition of definiteness. Such a definition is more compatible with a functional approach than a purely structural one and incorporates more potential sources of definiteness than a predominantly cognitive definition.

Closely related to the notion of definiteness is the concept of *reference*.

As a semantic concept, a noun phrase is said to be referring if it denotes or identifies an object which can be individuated from other members which belong to the same set as it (Givón 1984). Thus the italicized expressions used in (19) are all referring.

19a. I chased *the dog* that tipped over my garbage can.
b. My sister got *a new dog*.
c. The driver avoided running over *some dogs*.

In each case it is understood that the *dog* of the italicized expressions in (19) denotes a specific member of the category of dogs. It is not important, for purposes of reference, that the listener be familiar with the particular dog being referred to.

A non-referring expression, on the other hand, refers either to an entire set, as in (20), or to a non-individuated group of a set, as in (21).

20a. *The car* is a wonderful invention.
b. *Scarecrows* are useful to farmers.
c. *Monkeys* are a playful animal.

21a. Ellen has *the newspaper* delivered to her door every morning.
b. Raj always has *a doughnut* with his coffee.
c. Felix wants to buy *a new car*.

The predications expressed in (20) can be said to be a property of every member of the set denoted by the italicized noun phrase. These noun phrases merely presuppose the existence of the set and are, therefore, referred to as *existentials* (Carlson 1980). However, in (21), the predicate is not a property of every member of the relevant set of entities denoted by the noun phrase. Nor does it refer to a particular member of the set but instead to some unspecified subset. These noun phrases are referred to as *generics* (Carlson 1980).

It has been argued that since definiteness presupposes the existence of a unique or identifiable referent, non-referring expressions must be indefinite (Li & Thompson 1981; Ariel 1988). It has also been argued that since existential noun phrases refer to an entire set they are functionally equivalent to proper names (Krifka, Pelletier et al. 1995). Proper names are often considered to be the clearest examples of definite reference since they clearly identify a single referent which can clearly be individuated from all others (Hawkins 1978, Du Bois 1987; Fox & Thompson 1990). It has also been observed that both grammatical subjects and preposed objects tend to be non-referential more than they tend to be indefinite (Givón 1978, 1993). This would seem to suggest then, that non-referential noun phrases can be definite or are semantically similar enough so as to be considered definite. The data presented in this study do not, however, support this possibility. Instead, it appears that speakers are very much aware of the difference between referential and non-referential noun phrases. Moreover, it is shown that although speakers find sentences containing non-referential grammatical subjects and preposed objects, their occurrence in these positions is not preferred and only occurs under certain conditions.

This section has presented several different semantic and pragmatic properties of discourse topics, grammatical subjects, and preposed objects. Each of these properties has been presented, for the most part, as being distinct from each other. This is not, however, the case. Much of the following chapter explores the manner in which animacy, definiteness, and grammatical role tend to aggregate. It will be shown that speakers tend to group these properties in a consistent manner. The order in which these groups can be organized hierarchically, however, is specific to each of the different constructions which examined in this study.

1.2 Theoretical Perspective

I do not follow any particular theoretical framework in this study, but instead, bring together elements of functionalism, discourse analysis, and psycholinguistics. Each of these approaches contain useful elements for investigating and resolving linguistic issues. Although seemingly disparate, they share the goal of determining speakers' motivations for using different syntactic constructions. In the case of psycholinguistics the goal is to find explanations which are based on general cognitive or language processing strategies (Carroll 1986). In the case of functionalism and discourse analysis, the goal is to determine how various structures assist in the communicative function of language and how these functions shape linguistic structures (Givón 1993; Stubbs 1983). It is my hypothesis that these functional explanations have an underlying cognitive motivation found in the principles involved in language processing.

According to the generative view of language, it is the structure of linguistic elements which are universal and, as such, should be the focus of analyses. However, this assumption can severely limit the analysis of language. Specifically, it limits the scope of constructions which can be examined and the types of constructions which can be compared. As well, by discarding the potential impact of pragmatic factors, this approach limits itself to theory internal explanations. The net result is that important generalizations about language and language processing may be overlooked in syntactic analyses.

Functionalists, on the other hand, claim that linguistic elements have a communicative function and it is these functions rather than syntactic structures which are universal (Givón 1984). A consequence of the main tenet of functionalism is that linguistic elements are not compared or grouped based solely on surface features such as syntactic or morphological similarities. It is entirely possible for structures which are similar in appearance to have very different functions. Conversely, a functional category may be represented by different structures within a language (Croft 1990; Comrie 1981). Structurally, preposed objects and existential *there* sentences are dissimilar. However, as this study will demonstrate, they share a common function, namely to introduce important information in such a way that it does not interfere with the coherence of a text.

It is also important to note that sentences rarely occur in isolation. Instead, they are usually embedded within some form of written or spoken discourse. It is the goal of discourse analysis to discover and understand the principles and parameters which shape communication beyond the clausal level (Stubbs 1983). More importantly, as this study demonstrates, these supra-clausal principles can affect clause internal elements. However since they tend to span multiple clauses and involve pragmatic or semantic information, they are not often considered in generative analyses. Discourse analysis, when combined with a functional approach, allows linguists to investigate the motivation of these supra-clausal principles.

At the heart of the present study is the assumption that linguistic elements are organized in such a manner as to facilitate the processing of language. Thus, this thesis represents a psycholinguistic approach to the study of language. The term *psycholinguistics* has been applied to a wide range of research. Although seemingly disparate, these approaches all share the common assumption that language is an observable behaviour which reflects mental strategies typically shared by other cognitive processes (Prideaux & Baker 1986). Therefore, analyses need not be based solely on introspective data. Instead, it is possible to understand these processes by measuring speakers' behaviours, preferences, performance, and abilities, all of which can be objectively observed. Psycholinguistics makes no claims about what the object of investigation should be. It may be a structure or set of structures which share a common function. Nor does a psycholinguistic approach dictate what levels of representation may be investigated. Analyses of discourse, sentential, and morphological elements are equally possible within this framework.

1.3 Conclusion

This chapter has several purposes. First, it presented the central goal of this study, which is to demonstrate that the functional role of a construction can affect its structural and semantic organization. Second, it presented a brief description of discourse topics, grammatical subjects, preposed objects, and existential *there* sentences, which are the constructions examined in this thesis. It was shown that these constructions have unique syntactic, semantic, and pragmatic properties which can be used to distinguish them from other seemingly similar constructions. It was shown that these constructions have semantic tendencies which can not be solely attributed to their syntactic properties.

Also included in this section was a description of the three semantic and pragmatic properties most relevant to a discussion of discourse topics, grammatical subjects and preposed objects. It was shown that previous descriptions of definiteness and reference can be conflicting and thus there is a need to restate what these terms mean within the confines of this study. Third, this chapter presented a brief outline of the theoretical framework/ approach used in this study and some of the fundamental issues associated with the investigation of linguistic structures. It was claimed that this study demonstrates that a unified approach towards the study of language is more revealing than a purely generative, functional, or psycholinguistic one.

In the next chapter, I will present several previous analyses which are typical of the different approaches towards the study of discourse topic, grammatical subjects, preposed objects, and existential *there* sentences. The data presented in these studies are reviewed and the conclusions drawn from the analyses are compared. Differences in the conclusions drawn from these studies are identified and discussed. I then present an analysis of these constructions which is compatible with the previous analyses discussed yet accounts for the different conclusions made in them. In doing so, I present several specific claims regarding the relationship between these constructions and reduce these claims to a set of specific predications regarding speakers' behaviour towards these constructions. In the fourth chapter, I present several different methodologies which were used to test these specific hypotheses. Each procedure is explained and the results obtained from it are presented. These results are then interpreted and their relationship to this study is discussed. The final chapter of this thesis reiterates the major points of this study and explores its relevance to the field of linguistics.

Chapter 2 Previous Analyses

2.0 Introduction

The purpose of this chapter is to review the literature associated with the constructions and issues presented in the preceding chapter. The first part of the chapter presents several generative analyses which typify a structural approach to the analysis of discourse topics, grammatical subjects, preposed objects and existential *there* sentences. These analyses consider grammatical subjects and existential *there* sentences as being distinct from either discourse topics or preposed objects. The second part of the chapter presents several analyses which represent a functional-based approach towards the analysis of these same constructions. These include several analyses based on the formalized principles of Functional Grammar as presented in Dik (1978, 1989) are examined. Here, it is argued that the semantic properties of preposed objects and existential *there* sentences are a consequence of the semantic principles associated with sentential subjects. Following this is a discussion of a disparate set of functional analyses which emphasize the typological and pragmatic properties associated with discourse topics. The focus of these analysis is not so much on the constructions themselves as it is on their relationship to the concept of discourse topic. Included in this section is a discussion of the potential relevance of information status as constraint/motivation for the use of preposed objects and existential *there* sentences in English. The chapter concludes with a summary of the main points discussed in this chapter which also serve to motivate the alternate analysis of existential *there* sentences and preposed objects presented in the following chapter.

2.1 Structural Analyses

Generative grammar analyses are typical of the current structural approaches towards linguistic analysis. Generative theories, such as Government and Binding (GB), maintain that grammar is composed of a set of rules (or principles and parameters) and a lexicon (Chomsky 1986). These rules are responsible for constraining the different syntactic constructions which can be found in a language. To what extent these rules are innate has yet to be resolved. However, generativists agree that speakers must acquire either some of the rules or the principles which govern their interactions (Hyams 1986). Speakers acquire this knowledge by abstracting generalizations from language. These generalizations are based almost entirely on the structural characteristics of a language. Thus, generative grammars assume that speakers' knowledge of grammars is structural and that any modelling of speakers' linguistic knowledge should reflect that fact.

The discussions contained in this section assume some familiarity with the terminology, concepts, and rules of generative grammar as found in, e.g., Radford (1997).

2.1.1 Grammatical Subjects

The generative analysis of grammatical subject presented here is based largely on that given in Koopman and Sportische (1991) and extended in Sportische (1998). The analysis is, for the most part, similar to other generative analyses of grammatical subject. Koopman and Sportische claim that grammatical subjects are base-generated as an external argument to the verb phrase (VP) in a manner similar to that given in figure 1.

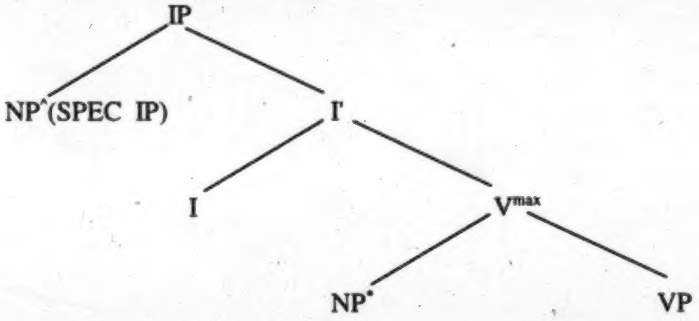

Figure 1. Representation of grammatical subjects in generative theory

Here, NP* represents the position in which grammatical subjects are generated in d-structure. NP^, on the other hand, represents the canonical position of grammatical subjects at surface structure. The main lexical verb, which is not shown, is a projection of VP. However, information regarding tense and number agreement is a property of I. I is also the position in which modals and auxiliary verbs are generated.

It is a property of all noun phrases that they receive some sort of case (Radford 1997). Although case is usually assigned by a verb to its arguments (Cowper 1992), Koopman and Sportische maintain that nominative case, which is the case assigned to grammatical subjects in most languages, including English, is assigned by I. As a result, it is necessary for the grammatical subject to move from its initial d-structure position to the specifier position of IP (Spec (IP)). Spec (IP), then, is the canonical s-structure position for grammatical subjects in English.

It is important to notice that in the analysis being developed here, $NP^{\wedge}$ is c-commanded by I, whereas NP^{*} is not. As stated in Cowper (1992), a node c-commands another node and any of its projections if both nodes are immediately dominated by the same node. In figure 1, both I and V^{max}, are immediately dominated by I'. Thus, I not only c-commands V^{max} but also NP^{*} which is a projection of the c-commanded node V^{max}. I can not c-command $NP^{\wedge}$ since $NP^{\wedge}$ is immediately dominated by IP whereas I is immediately dominated by I'. (Radford 1997). The fact that I c-commands NP^{*} but not $NP^{\wedge}$ has important consequences regarding the referentiality and definiteness of grammatical subjects.

Although $NP^{\wedge}$ is the canonical position of grammatical subjects at surface- structure, it is possible, through the process of Q-lowering, for them to occur in the position occupied by NP^{*} (Aoun & Li 1989). Moreover, these different possible positions of grammatical subjects correlate with, or are even responsible for, the different interpretations of sentences such as (22).

22. A unicorn might be waiting under the bridge.

On the one hand the grammatical subject may be referential and thus have the interpretation given in (23a). Here, the modal *might* has narrow scope and, thus, applies only to the predicate. It is possible, though, for *might* to have wide scope. That is, scope over the entire proposition including the grammatical subject. In this case, the grammatical subject may be considered non-referential resulting in an interpretation such as that given in (23b).

23a. There are such things as unicorns and one of them may be waiting under the bridge.
b. There may be something which might be a unicorn waiting under the bridge.

As stated, the different interpretations of (22) that are given in (23) correlate with different structural representations. In order to have the interpretation given in (23a), the grammatical subject must be positioned outside the scope of the modal or, in other words, must not be c-commanded by it (Sportische 1998). As stated above, modals are generated in I, which does not c-command Spec (IP). Thus in order for the interpretation of (22) given in (23a) to occur, the grammatical subject must be in its canonical subject position. If grammatical subjects are lowered to the position of NP*, as suggested above, then they would be c-commanded by I and hence falls under the scope of the modal *might*, leading to the interpretation of (22) given in (23b) (Aoun & Li 1989).

The analysis given above implies that reference is not an inherent property of a noun phrase, but is instead a property of the sentence in which a noun phrase occurs. Moreover, the determination of a noun phrase as referential or non-referential appears to be related to the same syntactic principles responsible for determining its definiteness. The consequence of this, as will be shown below, is that definitness entials referentiality and indefiniteness entials non-referentiality under certain circumstances.

The analysis given above also implies that grammatical subjects should predominantly be referential rather than non-referential. This implication is based on the claim that the canonical position of grammatical subjects is Spec (IP), a position outside the scope of I. Unfortunately, independent analyses regarding the properties of grammatical subjects do not wholly support this. Results obtained by Givón (1984) and Kuno (1976) indicate that grammatical subjects tend to be definite noun phrases which are, according to them, necessarily referential. Givón (1984) also demonstrates that in many languages speakers appear to equally prefer non-referential grammatical subjects. More importantly, Givón finds that speakers prefer certain types of non-referential grammatical subjects much more than grammatical subjects which are referential but indefinite, suggesting that not all referential noun phrases are equal. The analysis of grammatical subjects presented above does not provide syntactic justification for such an observation.

The analyses presented above does not directly concern itself with the issue of definiteness. However, as is discussed in the analysis of existential *there* sentences given below, adopting an analyses of grammatical subject such as that given above leads to certain assumptions regarding the representation of definiteness in English. Thus the two analyses are linked and any criticism of one, weakens the other. If both of these analyses are to be considered viable, they must develop a representation of definiteness and reference, as it pertains to grammatical subjects and existential *there* sentences, which is consistent with speakers' judgements and behaviours as measured in the upcoming sections.

2.1.2 Existential *There* Sentences

As indicated in the previous chapter, an important property of existential *there* sentences which any analyses of them must account for is the apparent restriction on the occurrence of definite noun phrases in post-verbal position. This restriction, also referred to as the definiteness-effect, is demonstrated in (24) and (25).

24a. There is a storm warning in effect.
b. There is a new lion at the zoo.

25a. *There is the storm warning in effect.
b. *There is the new lion at the zoo.

The only difference between the two sets of sentences is that those presented in (24) contain indefinite post-verbal NPs and those in (25) contain definite post-verbal NPs. Yet only those sentences in (24) are considered acceptable. Since the only difference between the two sets of sentences is the difference in the definiteness of the post-verbal NP, it must be that property which is responsible for the unacceptability of the sentences presented in (25). This observation is particularly challenging for a structural analysis since it must reduce the semantic concept of definiteness to a structural representation.

It should be pointed out that definiteness is not necessarily indicated by the presence or absence of either a definite or an indefinite article (Hawkins 1994). The sentences presented in (26) demonstrate only some of the many ways that definiteness can be expressed in English, including demonstratives, articles, pronouns, zero anaphora, and proper names.

26a. *That man* is going to drive me insane. [demonstrative]
b. *The Queen* expressed her sympathies. [article]
c. *She* will write her exam on Tuesday. [pronoun]
d. *The farmer*$_i$ picked his crops and [$\emptyset_i$] sold them at market. [article / zero anaphora]
e. *Ziggy* waited at the bus stop for an hour. [proper name]

In each of these sentences, the italicized noun phrase represents an entity which is intended to refer to a specific individuated referent or set of referents. Thus they meet the semantic criterion of definiteness. In (27), these same noun phrases are presented as the post-verbal NP of an existential *there* sentence. Not surprisingly, none of these sentences is considered acceptable.

27a. *There is *that man* that is going to drive me insane.
b. *There is *the Queen* who expressed her sympathies.
c. *There is *Ziggy* who waited for an hour.
d. *There is *she/ her* who will write her exam on Tuesday.
e. *There is [$\varnothing_i$] who picked his crops.

The sentences in (27a)-(27c) are acceptable only if *there* is interpreted as deictic expression. Typically, indefinite expressions in English contain either a quantifier or an article such as in the italicized phrases presented in (28) and (29) (Hawkins 1978).

28a. *Some people* were trapped in the building. [Quantifier]
b. *A large plane* was on the runway. [article]

29a. There were *some people* trapped in the building.
b. There was *a large plane* on the runway.

The italicized referents in (28) do not predicate reference to a uniquely identifiable referent and, as such, can not be considered semantically definite. The viability of using a semantic definition of definiteness is discussed more fully below. None the less, it is the definition of definiteness most often associated with generative analyses such as that being developed here (Higgenbothom 1987). As expected, these expressions can occur in the post-verbal position of existential *there* sentences, as shown in (29), without generating an unacceptable sentence.

As already observed, a defining property of grammatical subjects in English is that they exhibit tense and number agreement with the verb. This point is particularly important to a structural analysis of existential *there* sentences since it establishes that the post-verbal noun phrase of them are, at some level, the grammatical subject. Consider the sentences in (30) and (31).

30a. There is a new shampoo on the market.
b. There is a griffin lurking under the bridge.
c. *There is griffins lurking under the bridge.

31a. There are three stores opening in the mall.
b. There are several griffins lurking under the bridge.
c. *There are a griffin lurking under the bridge.

In (30), the verb is singular, indicating that the grammatical subject is also non-plural. Since *there* is non-referential, it is neither plural nor singular. In (30a) and (30b), which are acceptable sentences, the post-verbal NPs are also singular. In (30c), which is an unacceptable sentence, the post verbal NP is plural. Similarly, in (31) the verb is in the plural form which yields acceptable sentences only when the post-verbal NP is also plural as in (31a) and (31b). On the other hand, if the post-verbal NP is singular, as in (31c), the sentence is considered unacceptable. Therefore, the post-verbal NP must be considered as the grammatical subject of an existential *there* sentence.

The result is that the post-copula NP of an existential *there* sentence is generated at d-structure in the position of NP* (Sportische 1998). This is illustrated in figure 2, which presents the schematic representation of (30a). Here, the grammatical subject, *a new shampoo*, is generated in its usual d-structure position. This position, as stated above, is governed by I, the projection of which is INFL. INFL is the lexical representation of the agreement morphology associated with the verb. Notice that *there* is not present at d-structure. Instead, it is generated at the level of LF and inserted into Spec (IP) (Sportsiche 1998). The resulting surface structure is given in figure 3.

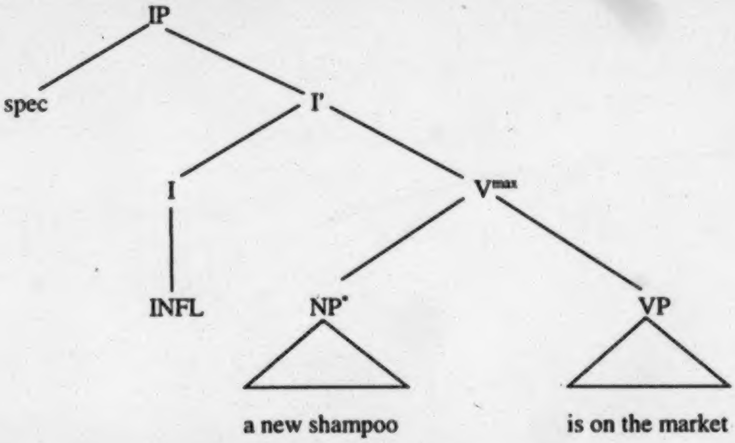

Figure 2. D-structure of an existential *there* sentence

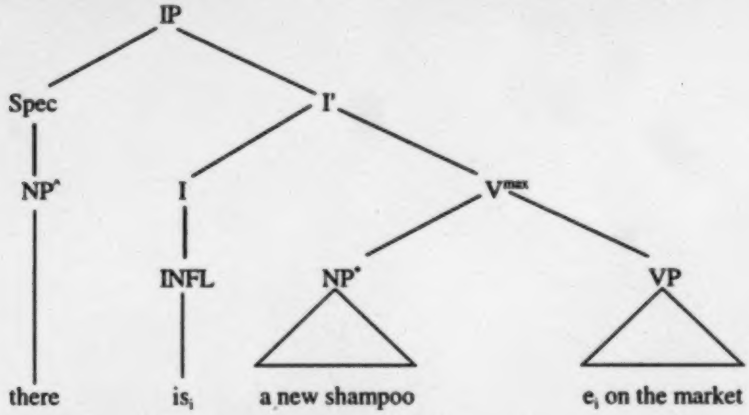

Figure 3. S-structure of an existential *there* sentence

There are two main differences between the representation in figure 2 and that in figure 3. The first is that the verb 'to be' is now a projection of INFL, which is the surface structure position for copulas and modals (Koopman and Sportische 1991). The second is that *there* occupies the position of Spec (IP). However, in order for *there* to occupy Spec (IP), Spec (IP) must be empty. Therefore, either the grammatical subject has not been raised, or it has been raised and then lowered. Sportsiche (1998) argues for the former. That is, the grammatical subject in existential *there* sentences do not raise to Spec (IP).

As already stated, every NP must be assigned case. Moreover, each case may only be assigned to one NP (Radford 1994). Given the preceding analysis, the following two questions arise. 1) Which NP, NP* or NP$^\wedge$, receives nominative case? 2) What case is assigned to the remaining NP and how is it assigned? To answer these questions, Sportsiche argues that there are two kinds of nominative case - *structural* and *inherent* (Sportsiche 1998). Structural nominative case is a relation which holds between a head, specifically INFL, and its specifier, which would be the lexical projection of Spec(IP). Inherent case, on the other hand, is a relationship between INFL and its complement, which is NP*. Because NP* is an external argument of the VP (i.e., is not governed by it), the VP does not assign case to it. According to Sportsiche's analysis, then, no case is assigned twice nor does any NP receive more than one case.

Although the analysis presented above can integrate the syntactic properties of existential *there* sentences with the previous analysis of grammatical subjects, it does not yet account for the apparent restriction against semantically definite post-verbal NPs. In an attempt to rectify this situation it has been argued that nominative case assignment expresses the semantic concept of definiteness (Higgenbothom 1987; Safir 1987; Sportische 1998). Specifically, it is argued that semantically definite noun phrases must receive structural case whereas indefinite noun phrases receive inherent case (Sportische 1998). Although similar arguments are made in analyses other than that given by Sportsiche (1998), the contrast is often labelled differently, i.e., strong/weak (Safir 1987), or saturated/non-saturated (Higgenbothom 1987). The end result of these analyses is that grammatical subjects which are definite must raise to Spec (IP). In doing so, they block the insertion of *there*. Indefinite grammatical subjects, on the other hand, need not raise to Spec (IP) to receive their required case and, therefore, do not prohibit the occurrence of *there*. The result is that definite grammatical subjects can not occur as the post-verbal NP of an existential *there* sentence whereas indefinite grammatical subject may.

The above analysis of grammatical subjects and existential *there* sentences, although compelling, raises several issues. One is its implications regarding the possibility of referential noun phrases occurring in post-verbal position in existential *there* sentences. It was stated earlier that reference is determined by structural properties of the sentence. Specifically, if a grammatical subject is c-commanded by a modal verb, it is considered non-referential. In order for a grammatical subject to be interpreted as referential, it must raise to Spec (IP). Once Spec (IP) is occupied, *there*-insertion is not possible. Thus it should be the case that the grammatical subject of sentences such as *There may be a griffin lurking under the bridge* have only a non-referential interpretation such as that in (32b) but not the referential interpretation given in (32a).

32a. Something is lurking under the bridge and it may be a griffin.
b. There may be something under the bridge and it may be a griffin.

Despite the fact that the grammatical subject of *There may be a griffin lurking under the bridge* should have only one interpretation, it appears that it may have either. If this is the case, then the analysis outlined above becomes suspect.

Of additional concern to this analysis is that, as mentioned in the previous chapter, it may be possible for post-verbal NPs of existential *there* sentences to be definite (Abbot 1993). The examples given in chapter 1 are given here again as (33) and (34).

33. A: Is there anyone we forgot to invite to the party?
B: Yes, there are *the Becks, the Wards, and the Clarks.*

34a. There was *the usual crowd* at the beach today.
b. There were *the usual delays* in traffic today.

It has been argued that existential *there* sentences such as that presented in (33) are not instances of existential *there* sentences in the same sense as those in (30) and (31) (Rando & Napoli 1978). The difference is that sentences such as those in (33) do not necessarily predicate the existence of the italicized post-verbal NP. Instead, they predicate the existence of a list which contains the items represented by the post-verbal noun phrase (Rando & Napoli 1978). If this is the case, then they would not present a counter-example to the definiteness restriction. However, the list interpretation of these types of existential *there* sentences may not be entirely accurate (Abbott 1993; Ward & Birner 1995). Moreover, sentences such as those presented in (34) do not seem to predicate a list and therefore must be considered as representing typical instances of existential *there* sentences. As such, these sentences raise several problems/issues for the structural analysis being developed here.

However, there are those who would argue that although the italicized noun phrases in (34) contain a definite article, they are not semantically definite NPs (Li & Thompson 1981; Wright & Givón 1987). Instead, these noun phrases are non-referential. Specifically they predicate a generic referent, such as that exemplified in (21) in chapter 1. As such, they are precluded from being definite. However, as will be discussed below, there are those who argue that definite noun phrases need not be referential (e.g., Declerck 1986). Thus the sentence in (34) would still present a counter-example to the generative analysis of grammatical subjects and existential *there* sentences.

The data presented in this study, though, seem to support the view that referentiality is an important criterion for definiteness and that speakers are sensitive to the different types of noun phrases. It is also argued that the restriction on post-verbal NPs of existential *there* sentences is not entirely semantic, but rather is one which is derived from pragmatic considerations.

2.1.3 Preposed Objects

Generative analyses do not, for the most part, directly recognize the notion of discourse topic as a structural concept which needs to be accounted for in a structural analysis. Generative analyses do, however, recognize that certain elements, including grammatical objects, can occur sentence initially in English. This phenomena has been given different names such as Y-movement and Topicalization (Müller & Sternefeld 1993; Radford 1997). Since the process is relatively uncontroversial within the generative literature, this section presents a structural treatment of preposed objects which is compatible with most current generative analyses.

In generative analyses, preposed objects are treated substantially different from grammatical subjects in existential *there* sentences. Complements of verbs and prepositions are base-generated in their appropriate argument positions as shown in figure 4 (Müller & Sternefeld 1993).

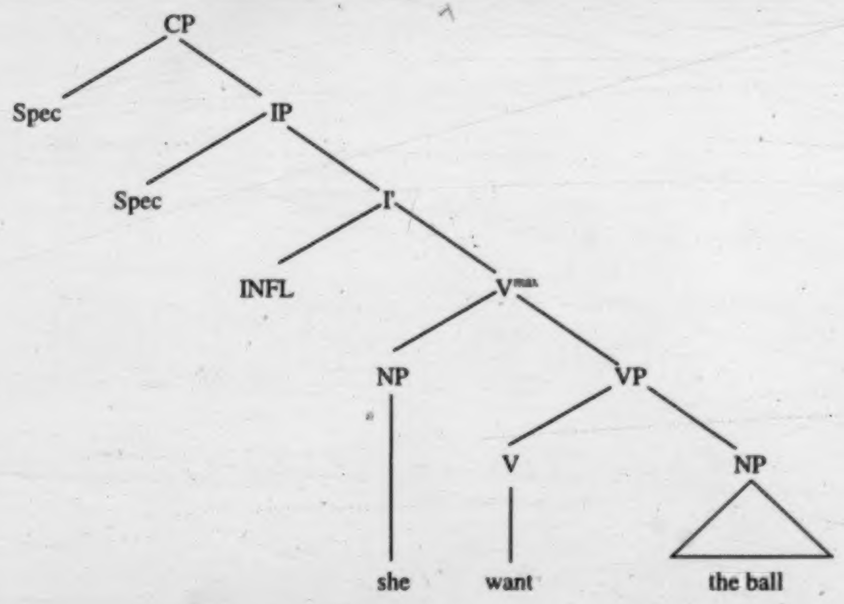

Figure 4. D-structure of a preposed object

Here, the grammatical object is that NP which represents *the ball*. If an element such as a grammatical object is to be topicalized, it must move to Spec (CP) rather than Spec (IP) (Müller & Sternefeld 1993). The reason that topicalized elements move to Spec (CP) is that noun phrases which are not grammatical subjects are assigned a case by either the verb, if it is a complement of a verb, or a preposition, if it is a complement of a preposition. Even though an element may move from a complement position, it leaves behind a trace. A topicalized element maintains its association with its head, and thus its case, via this trace. If the topicalized element were moved to Spec (IP), then it would receive additional case marking via INFL. Such a circumstance would violate the main assumption of case theory which is that noun phrases may receive only one case (Radford 1997). Since Spec (CP) is not a complement of either a verb or a preposition nor is it the specifier of IP, noun phrases occurring in it are not assigned case. Therefore, it is possible for noun phrases which are already case marked to move to Spec (CP). Thus the s-structure of a sentence containing a preposed object would be similar to that given in figure 5.

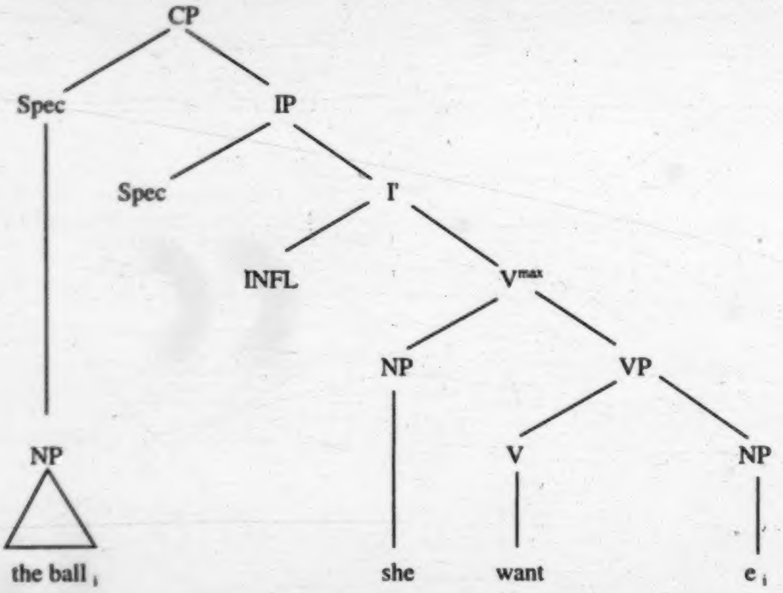

Figure 5. S-structure of a preposed object

This treatment of Y-movement seems straightforward and is, for the most part, accepted within the generative literature. Although it does account for the occurrence of objects in either pre- or post-verbal position, it does not provide any motivation for the displacement of grammatical objects. That is, it does not identify any semantic or structural property of objects which cause them to undergo the process of Y-movement. The low frequency with which preposed objects occur in English clearly suggests that their occurrence is not random but is constrained in some manner. Moreover, when sentences do contain preposed objects, they tend to be definite and animate (Givón 1995). In fact, as pointed out in chapter 1, sentences containing indefinite preposed grammatical objects are often considered ill-formed. Consider the sentences in (35).

35a. ?A man in the corner, George didn't notice.
b. The man in the corner, George didn't notice.

The only difference between the two sentences is that the one in (35a) contains a preposed object which is indefinite whereas the one in (35b) contains a preposed object which is definite. Yet, the one in (35a) is less acceptable. This can only be attributed to the fact that it contains an indefinite preposed object. Generative analyses have not yet been able to associate such a constraint with any structural property. Thus, a purely structural analysis falls short of accounting for the distribution of preposed objects.

2.2 Functional Analyses

This section presents a review of those analyses of discourse topics, grammatical subjects, preposed objects, and existential *there* sentences which, in some way, emphasize the relationship of semantic properties to the determination of syntactic structures. Moreover, the analyses presented below assume that functional relations are valid objects of study and that the syntactic properties of a construction are also determined to some extent by their functional characteristics. The purpose of these analyses is not to detract from any structural analysis, but to provide an integrated analysis of the semantic, syntactic, and pragmatic functions of language.

The analyses presented below are based on the principles of Functional Grammar as outlined by Dik (1978, 1989). Functional Grammar analyses, as discussed in this section, tend to focus on sentence level phenomena and on the relationship between the semantic role of a discourse entity and its functional and pragmatic properties. As a result, they provide a much different account of existential *there* sentences and preposed objects than that which is argued for in the following section. Although the arguments presented here are, for the most part, theoretical, they do have some measurable consequences regarding the semantic and syntactic properties of grammatical subjects, preposed objects, and existential *there* sentences.

2.2.1 Grammatical Subjects

As mentioned, Functional Grammar (FG) focuses on sentence level phenomena. As in the structural analyses given above, the development of a sentence occurs in stages. In FG, the initial stage involves the creation of a predicate frame (Dik 1989). The predicate frame consists of a stem, its arguments, and the relevant predications/propositions. Together, the stem and its arguments form the nucleus of the predicate frame which expresses a state of affairs (SoA). The state of affairs merely represents the event or information which a speakers wishes to communicate. Predications and propositions express such things as mood, tense and aspect which may have a bearing on the manner in which a clause is expressed.

The stem of the nucleus is typically a verb or other relational lexical item. Its' arguments are those elements which are specified by the stem's sub-categorization frame. Each of these arguments are initially expressed according to their semantic relationship to the stem (Dik 1989). Each stem must have at least one argument, which is represented as A^1. Arguments which are categorized as A^1 must have the semantic role of an agent, a possessor, a force, a process, or, in special cases such as existential *there* sentences, zero. If a stem has a second argument, A^2, it must be among other things, either a goal, a recipient, or a benefactive. Any additional arguments may have any semantic role except goal, or those belonging to the A^1 category. The next stage in sentence formation is to assign a syntactic function to each argument. Normally, the role of subject is assigned to argument A^1 and that of object assigned to argument A^2. The process is represented diagrammatically in figure 6.

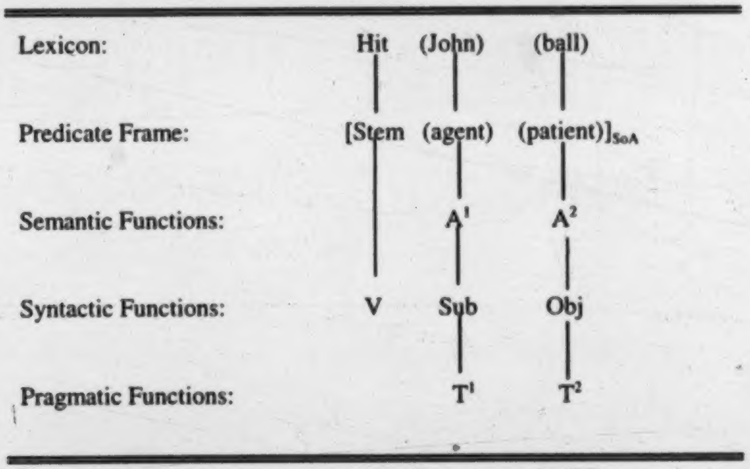

Figure 6. Schematic representation of sentences in FG

Once an argument has been linked to a syntactic function, they are then associated with a pragmatic function. Typically, arguments in subject position, which represent the primary perspective for the SoA, also tend to be the topic (Haberland & Thomsen 1994). Moreover, as shown in figure 6, a clause may have more than one topic. However, the primary topic tends to be associated with subject position.

The term *syntactic function* has a different meaning in FG than that usually attributed to it. Here, syntactic functions represent different vantage points or perspectives from which the state of affairs may be expressed. The primary perspective is expressed as the grammatical subject whereas the secondary perspective is expressed as the grammatical object. For example, in (36a) *John*, which has the semantic role of agent, is the grammatical subject and as such represents the primary vantage point from which the sentence is interpreted.

36a. *John* hit the ball.
b. The ball was hit by *John*.

Conversely, in (36b), *John*, which is still the agent, no longer represents the primary vantage point from which the state of affairs expressed by the sentence is viewed. Consequently, it is not assigned the syntactic function of subject.

In FG, each predicate frame is said to have an inherent perspective or orientation (Haberland & Thomsen 1994). Typically it is considered that agents, or A^1 arguments, tend to represent the primary perspective for any given state of affairs. The argument for this claim is that if a sentence has only one argument, that argument tends to be an A^1 argument (Dik 1989). Thus, by default, they represent the primary perspective. Moreover, it is typologically more common for subjects to be an A_1 argument than any other type of argument (Dik 1989). Therefore, of the two sentences presented in (36), (36a) is considered to best represent the inherent perspective associated with the stem *hit*.

The implication here is that grammatical subjects tend to be agents. As pointed out by Hopper and Thompson (1980), an important facet of agency is individuation. That is, agents tend to also be entities which speakers can identify as a specific member of a set. They are, in other words, referential. If this is true, then it would be expected that the majority of grammatical subjects would be referential rather than non-referential.

According to Kuno (1972, 1976, 1987), however, the primary perspective of an event is not determined by an arguments' semantic role. Instead, it is determined on the basis of an arguments' inherent semantic properties.

Specifically, he claims that speakers select as the primary perspective that entity which they find easiest to empathize with. The degree to which a speaker may potentially empathize with a referent is determined according to a set of related principles formulated as a set of semantic hierarchies which represent various dimensions or properties of an entity. They include, among other things, an entity's animacy, definiteness, and relationship to the discourse topic.

The primary property of an entity which most affects a speakers' degree of empathy is its animacy. The concept of animacy is often presented in the form of the hierarchy given below.

Human > Non-human > Inanimate

This hierarchy, it is often claimed, represents a typological universal (Comrie 1981). As such, if a construction or process in a language permits noun phrases which represent non-human referents it must also allow those which represent human entities but not necessarily those which represent inanimate entities. This generalization has been shown to be true in an exceptionally wide range of circumstances (Silverstein 1976; Comrie 1981; Croft 1990). Kuno considers this hierarchy to represent an important aspect of empathy. Thus he claims that speakers tend to empathize with human referents rather than non-human referents and non-human referents rather than inanimate referents.

A secondary property of entities which may affect speakers' ability to empathize with them is their definiteness. Specifically, Kuno (1987) claims that those entities which are definite are more easily empathized with than those which are indefinite. The rationale for this claim is that speakers should find it easier to empathize with those entities which are already known to them than to those which are not. Furthermore, he claims that speakers find it easiest to empathize with those entities which are not only known to them, but which are also participants in the discourse. Thus the principles of empathy are not restricted to semantic properties. As mentioned above, the degree to which a speaker empathizes with an entity may, in part, be affected by its' relationship to the discourse topic. That is, those entities which are related to the topic are more easily empathized with than those which are not.

Unfortunately, Kuno does not explore the relationship between the different principles of empathy. That is, it is not clear if all principles, other than animacy, are equally weighted or if the principles themselves are arranged hierarchically. This is an important consideration since it is entirely possible for these properties to be in conflict. That is, of the entities to be encoded in a sentence one may be definite but unrelated to the topic whereas another may be indefinite but related to the topic. If all the principles are to be given equal consideration by speakers, then how are such conflicts to be resolved? If some principles of empathy are more important than others then which are to be given more weight? As already mentioned, the property of animacy is the primary determinant of speakers' degree of empathy towards an entity. The properties of definiteness, on the other hand, is given secondary consideration, thus suggesting an empathy hierarchy such as:

Human, Def. > Human, Indef. > Non-human, def. > Non-human, Indef.

The consequence of Kuno's analysis is that grammatical subjects, which represent the speakers perspective of the event encoded in a sentence, should most often refer to definite human referents. The second most frequent type of grammatical subject should be that which refer to human referents but is indefinite. The third most frequent, then, would be those which are animate and definite, followed by those which are animate but indefinite and so on. The impact of such a claim is explored more fully in the discussion which focuses on the relationship between grammatical subjects and word order.

2.2.2 Discourse Topics

According to the tenets of Functional Grammar, topic is primarily a sentence level phenomena. An element of a sentence is either part of the *topic* or part of the *focus* (Haberland & Thomsen 1994). The focus of a sentence is that element of a sentence which represents the most salient information. Typically, the most salient information in a sentence is that which represents information new to the discourse. The topic, on the other hand, is that element of the sentence which the focus provides information about. For example, in (37a), *the protestors* represents new information to the discourse. Thus, it is presumed to be part of the focussed information.

37a. Did you see *the protesters* outside?
b. *They* are protesting proposed tuition increases

However, in (37b), it no longer represents new information and is, in fact, presumed to be part of the topic. It is considered to be the topic because *they* represents that entity to which the focus information refers to.

It is important to point out that topic and subject are separate properties. Subjects are deteremined by the semantic relationship of the stem to the nucleus whereas topic is context dependent. That is, an element is only topical because it has been given that status in a discourse. Thus topic, although a sentence level phenomenon, is a pragmatic concept. As a result the two concepts may or may not overlap. For example, consider the utterance in (38).

38 Did you see *the demonstrators* this
morning?
The police came and removed *them*.

In the second sentence of (38), the topic is *them*. Yet it is not the grammatical subject. Instead the grammatical subject, although structurally a definite noun phrase, represents new information. The reason *them* is considered to be the topic is, of course, because it represents the entities to which the new information is related.

In the final sections of this chapter it is argued that the pragmatic function of discourse topic is to provide a discourse with both coherence and cohesion. In FG, this is considered to be a function of sentence level topics. Sentence topics provide coherence and cohesion by creating pairwise connections between sentences (van Dijk 1977). For example, in (37) the two sentences are connected because both sentences contain a reference to the same entity. In the first sentence the reference is made using a full noun phrase, whereas in the second sentence it is made using an anaphoric pronoun. As mentioned above, it is only in (37b) that the referent of *them* achieves the status of topic. It is also the point at which it provides cohesion and coherence by providing a connection to the previous statement (Dik 1989). Thus coherence/cohesion is a consequence of sentence-level topics.

In FG, discourse topic has no pragmatic role. Instead, discourse topic is seen as a concatenation of the sentence-level topics which occur in a discourse. Thus, discourse topic is a multi-propositional concept. That is, the discourse topic is not represented by a single entity throughout the discourse. Rather it is represented by multiple entities and propositions. As a result, the entities which make up a discourse topic need not have uniform semantic or pragmatic properties. This contrasts with the claims associated with the proactive notion of discourse topic presented later in this chapter.

2.2.3 Preposed Objects and Word Order

The purpose of this section is to determine if the principles of FG can be used to account for the differences between the sentences in (39).

39a. Well, Sherry burned the potatoes.
b. Well, the potatoes Sherry burned.

Both sentences predicate the same information. Moreover, despite their differences, they both represent the same perspective on the state of affairs being predicated. That is, in both sentences, *Sherry* represents the primary perspective and *the potatoes* the secondary perspective. Moreover, by prefacing (39) with (40) it can be shown that *the potatoes* is the topic in both (39a) and (39b) and that *Sherry* is part of the focus.

40. How come we're having rice instead of
potatoes?

Given these facts, the question remains, what is responsible for the different orderings of the constituents in (39).

According to FG, constituent ordering is determined by a combination of universal and language specific expression rules (Weigand 1994). These rules are responsible for ordering both constituents and their internal components. These rules range from maximally generalized templates such as in (41a) to extremely specific expression rules such as in (41b) (Wiegand 1994).

41a. Predicate order = S V O
b. PERF (X-v) = have ^ PaP (X)

The former is responsible for the ordering of subject, verb, and object. The latter merely indicates that if a sentence has a perfective proposition in its predicate frame, that proposition will have the form 'have + past participle + verb'. The exact nature or representation of expression rules is not of critical importance to this study. What is important is that all of these rules are subject to pragmatic considerations.

One such pragmatic consideration is the tendency for speakers to place topic related information at the beginning of a sentence (Dik 1978; Kuno 1987). This preference for placing topic in sentence initial position is often treated as the motivation for preposing grammatical objects. Certainly in (39b), the preposed object is the topic of the sentence. However, as (38) and (39a) demonstrate, it is perfectly acceptable for grammatical objects to represent the topic of a sentence without occurring in sentence initial position. Moreover, as Haberland and Thomsen (1994) point out, it is not always necessary for the fronted constituent to be a topic. Haberland and Thomsen also argue that the use of an object, or more specifically an A^2 argument, to represent a sentence-level topic is the motivation for passivization in which the object becomes linked with the pragmatic function T^1. Therefore, they conclude that the primary purpose of preposing grammatical objects is to highlight or emphasize the information which they encode. In FG, information which is salient is considered to be part of the focus. Therefore, according to Haberland and Thomsen, it is more likely for fronted elements to represent focus information.

As already mentioned, topic and focus noun phrases tend to be associated with different *information statuses*. Topics tend to represent given information whereas focus noun phrases tend to represent new information. Given information is any information which has been established in a discourse. A referent may be established in a discourse in one or more of several ways. Specifically, it may be *textually established*, *situationally established*, or *inferred* (Prince 1981a, 1992). In order to be considered textually established, a referent must be directly introduced into the current discourse through linguistic means. If a referent is situationally established, then it is part of the current discourse model because it is either present in the physical environment of the discourse or because it is has been established in a previous discourse which the current discourse makes reference to. The term *inferred* applies to those referents whose existence can be inferred from the current discourse. That is, a referent may be considered as being established if it is a property of or is typically associated with another referent which has already been established in the discourse.

The point here is that if preposed objects represent focus information they should tend to represent information which has not been established, at least textually. If, on the other hand, preposed objects represent topic information, they must represent established information. In other words, if preposed objects represent given information, they should tend to be highly anaphoric or occur in the previous clauses. If, however, preposed objects represent focus, or new information, then they may either be given or new and, more importantly, may or may not occur in the previous clauses. Below, it is shown that such theoretical predications can be reduced to quantifiable measures. Moreover, the data which are discussed provides evidence to shown that preposed objects may not necessarily represent topic information.

2.2.4 Existential *There* Sentences

As shown above, the preposing of grammatical objects is primarily a pragmatic phenomena. As such, it is independent of a language's expression rules or semantic functions. Existential *there* sentences, on the other hand, are not considered to be a pragmatic phenomenon. Typically, they are considered as existential presentative sentences which merely indicate the existence of the information conveyed by the sentence (Haberland & Thomsen 1994). Although this is an adequate semantic definition of these sentences, it is not a pragmatic or functional one. Because they have no particular function attached to them, the treatment of these sentences is at the level of the predicational frame and, to some extent, expression rules.

In the structural analysis discussed above, it was indicated that the grammatical subject of an existential *there* sentence is the post-verbal NP. In FG, the subject of the existential *there* sentence is the pre-verbal *there*. However, it is not considered to be the topic of the sentence. Rather, these sentences are considered to be *thetic* sentences. A thetic sentence is one which has no internal topic (Haberland & Thomsen 1994). *Categorical* sentences, on the other hand, have an internal topic which, as already mentioned, is usually actualized as the subject of the sentence. This arrangement, diagrammed above in figure 6, represents the prototypical sentence in terms of argument and word order structure.

The stem of the predicate frame of a thetic sentence does not assign a primary argument, i.e., A^1 (van Dijk 1977; Haberland & Thomsen 1994). But, in order to conform to the SVO prototype or template associated with English, it must have a subject. Thus the dummy *there* is used in subject position. The predicate frame for the thetic sentence, *There are people at home*, is diagrammed in figure 7. Notice that the subject has no semantic role or association with the stem. It merely occupies the position of a subject. Since it has no semantic value, it can not represent a primary perspective or indicate topic. Although it is possible for objects to represent topic information, Haberland and Thomsen argue that this is not the case here. Rather the position of topic is, in their opinion, prototypically an extension of the subject position to the pragmatic level, represented here as T^1. Since the dummy *there* can undergo such processes as raising, a process which applies only to topics, it to must function as the topic even though it is semantically empty.

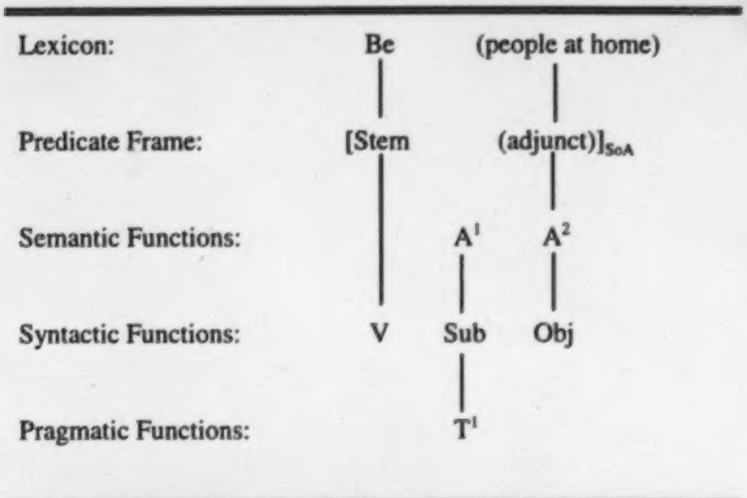
Lexicon:
Be
(people at home)
Predicate Frame:
[Stem
(adjunct)]$_{SoA}$
Semantic Functions:
A^1
A^2
Syntactic Functions:
V
Sub
Obj
Pragmatic Functions:
T^1

Figure 7. Schematic representation of an existential *there* sentence in Functional Grammar

The consequence of this, then, is that the adjunct of an existential *there* sentence represents focus information only (Hannay 1987). Therefore, under this analysis, it would be inappropriate to use an existential *there* sentence when the post-verbal noun phrase of the sentence is a topic. For example, consider the two sentences in (42).

42a. *This morning, there was the racoon that scattered garbage on my lawn.

b. This morning, there was garbage scattered on my lawn by the raccoon.

The sentences in (42) represent similar propositions yet (42a) is considered unacceptable. According to Hannay (1987), the reason (42a) is unacceptable is because it, like (42b), has a topic, which in this case is *the raccoon*. The difference between the two sentences is that in (42b) the topic is also the grammatical subject whereas in (42a) it is not. Thus it appears that the relevant constraint for existential *there* sentences is that the post-verbal NP may not represent topic information.

Ward and Birner (1995), on the other hand, argue that it is possible for existential *there* sentences to have a topic. Consider the sentence in (43) (taken from Ward & Birner 1995:727).

43a. Look! There is a huge raccoon asleep under my car.

As Ward and Birner (1995) point out, the topic of this sentence, which is acceptable, is *a huge raccoon*. It is also the post-verbal NP of the sentence. As a result, they claim that the assumption made by Hannay regarding the occurrence of topic NPs in existential *there* sentences is, at best, a partial solution. Instead Ward and Birner propose a broader constraint on post-verbal NPs of existential *there* sentences which focus on its information status.

2.3 Alternate Analyses

The analyses presented in this section are not based on principles from any particular theory. However they all tend to focus on the effect pragmatic functions have on the determination of preposed objects and existential *there* sentences. The majority of the analyses presented here combine theoretical assumptions of functionalism with principles of typology. In these analyses the concepts of markedness and implicational hierarchies are used as an explanation for the semantic and pragmatic properties of various linguistic constructions. These analysis are contrasted with those which focus on the information status of a construction. Although the two approaches are in some ways similar, they make conflicting predications regarding the semantic and pragmatic properties of preposed objects and existential *there* sentences. It is also shown that neither approach by itself is able to present an adequate account of both constructions.

2.3.1 Properties of Discourse Topic

In the preceding section, discourse topic was analyzed as a multi-propositional concept which provides pairwise connections between sentences. Here, it is argued that discourse topic is a proactive concept which expresses the ideas and/or goals which set the boundaries of a discourse. The remainder of this chapter explores the consequences of this statement for the semantic organization of clauses. First the properties of definiteness, reference, and animacy are discussed. They are then examined for their relevance to discourse topics. Finally the pragmatic and semantic characteristics of discourse topics are compared to those of grammatical subjects, preposed objects, and existential *there* sentences.

2.3.1.1 Topic Continuity and Referential Distance

As previously mentioned, an important pragmatic function of discourse topic is to provide a text with both cohesion and coherence. In order to ensure that a text is both cohesive and coherent, statements which occur in the discourse frequently refer, either directly or indirectly, to the discourse topic (Stubbs 1983; Brown & Yule 1983). In a corpus of spoken discourse, Givón (1983) found that topic-related noun phrases occurred in approximately 2 out of every 3 clauses. Non-topic-referring noun phrases, on the other hand, seldom reoccur within a text, often occurring only once or twice. As a result of studies such as these, topicality, or topic relatedness, is often associated with those referents which occur most frequently in a text.

The association of topicality with frequency of occurrence has been refined to produce the two methods of measuring topicality which are most often used in discourse and functional analyses. These measures, which were developed by (Givón 1983), are *Topic Persistence* (TP) and *Referential Distance* (RD). TP refers to the number of times a noun phrase occurs or is referred to anaphorically in the subsequent 10 clauses. RD is the number of preceding clauses which separate a noun phrases from its previous mention. If a noun phrase is topical, and thus often repeated, it should have a high TP value but a low RD value. Givón (1983) finds that topic-related noun phrases tend to have RD values of less than 1, whereas non-topic-related noun phrases tend to have RD values of more than 3. He also finds that topic related noun phrases have substantially higher TP values than non-topic-related noun phrases.

The value of these analyses is that they provide an objective means of determining topicality. More importantly, these analyses do not characterize topicality as a binary quality which a discourse entity either does or does not have. Instead these analyses allow for different degrees of topicality. An underlying assumption which is present in the analyses discussed below is that the degree of topicality of an entity can be determined by its semantic and pragmatic properties. Those discourse entities which embody the prototypical properties will tend to be more topical than those which embody less prototypical properties. As already mentioned, the semantic and pragmatic properties most often associated with discourse topics are definiteness, reference, and animacy.

2.3.1.2 Definiteness and Reference

The concepts of definiteness and reference are usually expressed in terms of *markedness* rather than as an implicational hierarchy. According to markedness theory, for any set of binary values which express a grammatical property at least one member will be unmarked (Comrie 1981). The unmarked value is that member of the set which occurs most frequently or is least often marked by grammatical means. Typically definite and referential are the unmarked values for their respective sets. Although definiteness and reference are separate concepts, they are linked and any discussion of one affects the interpretation of the other. Moreover, there is some evidence to indicate that the two properties combine to form an implicational hierarchy such as that given below (Croft 1990).

Definite > Indefinite > Non-referential

This hierarchy assumes certain facts regarding the nature of reference and definiteness. One is that the distinction between definite and indefinite reference is of greater importance to speakers than that between referential and non-referential reference. Another is that it assumes that all non-referential noun phrases are, at least to speakers, semantically the same. However, as shown in this section, this may not necessarily be the case. That is, it is possible that non-referential noun phrases may be definite, depending on how these concepts are characterized. In the analysis discussed below, definiteness is characterized as indicating either familiarity or accessibility. However, this is only one of several possible characterizations of this concept.

2.3.1.2.1 Definitions of Definiteness and Reference

This section presents three different approaches towards the characterization of definiteness. Although the first two approaches are essentially pragmatic, they emphasize different aspects of definiteness. The third approach, on the other hand, characterizes definiteness in terms of cognitive accessibility. Each approach predicates a different relationship between the concepts of definiteness and reference. Because of the importance of definiteness and reference to this study, it is necessary to clarify what is meant by these terms and to determine the issues associated with them.

The first approach to definiteness which is discussed here characterizes definiteness in terms of uniqueness and inclusiveness. (Löbner 1985; Chesterman 1991). According to this approach, all referents belong to a set of similar referents. Definite expressions are used only when the intended referent can be isolated from all other members of the set. Under such conditions, the noun phrase is said to predicate reference to an inclusive set.

The inclusive set contains only those members of the larger referent set which are the intended referents of the noun phrase. For example, in (44), the noun phrase *a computer* predicates the existence of a set of referents which, in this case, is all possible computers. Furthermore, Speaker A does not assume that Speaker B has sufficient information to discern which member of the set of computers is being referred to.

44 A: I just bought *a computer*.
B: Did you buy a Mac?
A: No, *the computer* I bought is an IBM.

The noun phrase *the computer* in the second statement of Speaker A, however, not only predicates the existence of the same set of referents, but also predicates reference to a specific member of that set. The inclusive set of referents here, then, is limited to one member since only one member of the larger referent set can satisfy the description of the intended referent.

There are three conditions under which a speaker may consider that a noun phrase will be inclusive or unique (Hawkins 1978). One is if the noun phrase is anaphoric such as *it* in (45a). That is, if the noun phrase refers to a previously established noun phrase. Two is if the noun phrase is relational as in (45b). Here the author does not refer back to a previously established referent. Rather, it is understood that a property of books is that they have authors. Thus *the author* has, in a sense, an anaphoric relationship to *a book*.

45a. A bird flew past the window and my cat tried to catch *it*.
b. Sheila gave me a book. She knows *the author*.
c. Don't step in *the puddle*.

Finally, if the referent of a noun phrase is a part of the external context in which a predication is being made, it may be assumed to be uniquely identifiable. For example, (45c) would most likely be uttered in the presence of the intended referent of *the puddle*. Because it is present in the environment, it can be understood as the only member of the referent set which the speaker intends to refer to.

It has also been argued that definiteness is, essentially, a matter of familiarity (Hawkins 1978; Prince 1981a). Basically, if a referent is familiar to a speaker/listener may be considered definite. The italicized phrases in (46) all predicate reference to an entity which the speaker assumes if familiar to the listener.

46a. The Prime Minister is visiting *China*.
b. *He* went to Beijing.
c. *The boy* who used to sit next to me is from there.

In (46a), the referent is familiar because of our knowledge of the world. That is we are aware that this reference exists even if we have not had personal contact with it. In (46b), the referent is considered familiar because it refers back to a referent which has already been mentioned. In (46c), the referent is considered to be familiar because of the additional information in the relative clause (Chesterman 1991). These situations are similar to the same conditions for inclusiveness discussed above. Therefore, those who advocate an account of definiteness based on familiarity argue that it can apply to the same occurrences of definite articles as those which advocate inclusiveness.

However, if we reconsider the sentence in (46c), it can be seen that the two types of definiteness are not equal. It is possible to substitute an indefinite article for the definite article in the italicized noun phrase in (46c.) (Lyon 1999). Since the subsequent relative clause is not changed, it should predicate the same level of familiarity. Thus the felicitous substitution for the indefinite article can not be explained in terms of familiarity. It can, though, be explained in terms of inclusiveness. Quite simply, the use of the definite article assumes that there is only one member of the referent set which satisfies the referring conditions. The use of the indefinite article, on the other hand, does not involve this assumption. That is, the speaker does not assume that the listener is able to form an inclusive set of referents based on the proposition.

As already mentioned, the different interpretations of definiteness affect their relationship with concept of reference. The difference between referential and non-referential noun phrases is that referential noun phrases presuppose the existence of a specific referent (Lyon 1999). This referent may or may not be known/familiar to the listener or form an inclusive set. If it does not, it is considered indefinite. A non-referential noun phrase on the other hand, does not refer to a specific member of a set. Instead, it either predicates reference to an entire set of referents, as in (47a) (Declerck 1986) or to an unspecified member of a set which represent typical properties associated with the entire set, as in (47b) (Carlson 1980).

47a. *The lion* is a majestic animal.
b. If hungry enough, *a lion* may eat its cub.

In (47a), *the lion* refers to all members of the relevant set of referents, i.e., lions. That is, it is a property of the set of lions that they are majestic. The proposition expressed in (47b), however, is not a property of the entire set of lions. Instead it is interpreted as a property of typical members of the set of lions (Carlson 1980). In neither case are the italicized referents intended to refer to a specific member of a set, uniquely specifiable or otherwise.

It has been argued that some non-referential noun phrases should be considered semantically definite (Declerck 1986; Krifka, Pelletier, et al. 1995; Lyon 1999). Specifically, it is argued that existential non-referential noun phrases, such as that in (47a) above, uniquely identify an entire set of referents. Therefore, they too should be considered as predicating inclusive reference. That is, the referent of these noun phrases include all the relevant members of the intended set of referents. As such, these expressions should be considered as uniquely identifying. However, this assumes that definiteness is a matter of inclusiveness.

It has also been argued that noun phrases which predicate generic referents may be indefinite. Specifically, it is claimed that the referent of a generic noun phrase is a single prototypical instance of a set which conceptually stands in for (Koga 1992; de Swart 1996). de Swart (1996) claims that predications which express a property of an entire set can not be used in a sentence which contains a generic noun phrase. For example, in (48a) the italicized noun phrase refers to an entire set of referents. Thus it is acceptable for a proposition which expresses a characteristic of the entire set to occur with it.

48a. *The dodo* is extinct.
b. ?*A dodo* is extinct.

However, in (48b), the italicized noun phrase is generic and, according to de Swart, predicates a single instance of the relevant set of referents, i.e., dodos. Because of this, it can not occur with a proposition which expresses a property of an entire set. Thus, it would seem that generic noun phrases are conceptually equivalent to indefinite noun phrases. However, this assumes that definiteness is a matter of familiarity. That is, it is possible for a generic noun phrase to represent a concept or set of concepts which are familiar to a speaker. It is not possible, though, for a generic referent to be inclusive. Since there is no intention to refer to a specific referent, there is no predication of an inclusive set.

Rather than characterize definiteness with respect to its pragmatic properties, Chafe (1976, 1992, 1996) argues instead that it is primarily a cognitive phenomenon. That is, the interpretation of a referent as definite or indefinite is related to its *accessibility*. Referents are considered accessible if a mental representation of a referent is easily accessible by the listener. Referents which are assumed to be part of the speaker's immediate focal consciousness are considered to be the most salient and the most accessible (Chafe 1996). Referents which are not in a speaker/listeners' immediate consciousness may also be considered definite if they are part of the immediate speech situation (Givón 1994; Chafe 1996). To be part of the immediate speech situation, a referent must be established in the discourse or represent part of the speaker and hearer's shared knowledge. As already mentioned, information may be established in a discourse either textually, situationally, or it may be evoked. Shared information represents those ideas, referents, and experiences which are shared by the speaker and hearer because of past discourses, cultural similarities, or similar experiences (Chafe 1994). Information which the speaker assumes is accessible to the listener tends to be expressed as a definite noun phrase (Gundel, Hedberg, & Zacharski 1993). Information which is not accessible tends to be expressed using an indefinite noun phrase.

Because the focus here is on the cognitive status of the mental representation of the intended referent, this approach to definiteness does not necessarily distinguish between referential and non-referential noun phrases. Thus, no specific claim is being made here as to the manner in which these types of referents are mentally realized. It may well be that non-referential referents are represented within a mental discourse model as a single entity whether or not they are existential or generic. Thus, the manner in which a referent is mentally represented has no bearing on its cognitive status.

2.3.1.2.2 Definiteness and Discourse Topic

Many studies have concluded with the assertion that the majority of topic-related noun phrases are definite. It has also been found that, if a topic related noun phrase is not definite, it is more likely to be non-referential rather than referential (Givón 1984). In his examination of topic-related noun phrases in Nez Perce, Rude (1992) finds that topic-related noun phrases tend to occur in pre-verbal position. Moreover, of the noun phrases which occur in preverbal position, 87% represent definite rather than indefinite noun phrases. Givón (1984) reviews written texts taken from various languages, including English, and also finds that in each language most topic-related noun phrases are indeed definite. That topic-related noun phrases tend to be definite is not surprising since they are, by definition, anaphoric and thus are considered pragmatically definite. Of the remaining topic-related noun phrases discussed by Givón, almost all were non-referential rather than referential and indefinite. This would seem to suggest then, that non-referential noun phrases may be definite. That is, if topics are, by definition, definite and non-referential noun phrases may be topics, then they too must be definite when occurring as a topic. However, Givón does not indicate if the non-referential noun phrases are existential or generic.

The occurrence of non-referential topic-related noun phrases would suggest that characterising definiteness in terms of inclusiveness or uniqueness is more appropriate, at least in this study, than characterising it in terms of familiarity. It would also seem to suggest that speakers are more sensitive to differences in definiteness than to differences in referentiality. Despite the implications of the claim that discourse topics tend to be non-referential rather than indefinite, it has been given very little attention. In fact, a search of the relevant literature failed to uncover any quantitative study directed at exploring this issue. Although this study does not directly address this issue either, it does present evidence which indicates that speakers are sensitive to differences in referentiality.

2.3.1.3 Animacy

As stated in the previous chapter, animacy is typically considered as representing an inherent property of a referent. People are animate since they are capable of, among other things, self-determined movement, growth, and reproduction. Inanimate objects on the other hand, lack these qualities. Thus, entities such as dogs, insects, and bacteria are intrinsically animate. However, as Yamamoto (1999) points out, speakers tend to construe some entities as being more animate than others. For example, people tend to consider humans as more animate than amoebas even though both are equally animate. Moreover, speakers can attribute animate or human like characteristics to inanimate objects. For example the speaker of (49) is attributing human-like emotions and motivations to an inanimate object, namely *the H.M.S. Fredricton*.

> 49. It is with regret and sadness that we retire the *H.M.S. Fredricton*. *She* served *her* country honourably.

The construal of *the H.M.S. Fredricton* as an animate entity is obvious from the use of the third person pronouns *she* and *her*. These observations lead to the conclusion that animacy is not necessarily an inherent property of entities but one which a speaker attributes to it.

If animacy is not an inherent property then how is it determined? Yamamoto maintains the degree of animacy attributed to an entity is determined by a speaker's ability to perceive it as an agent and as an individual entity. Those entities which are capable of enacting a wide range of events are typically considered more animate than those which are limited. Since humans are able to instigate more events than a single cell organism, speakers tend to consider humans as more animate than amoebas. Similarly, inanimate objects which seem to mimic animate qualities or appear to enact events tend to be more easily construed as animate than those which do not. Thus machines, which can enact events or perform animate-like movement, tend to be construed as animate more easily than a sidewalk, which does not exhibit any animate-like properties.

It is also argued that speakers find it easier to attribute animacy to discourse entities which are referential rather than non-referential. Yamamoto claims that this holds true even for non-referential noun phrases which are comprised of animate entities. These types of noun phrases have the potential for animacy, it is not automatically attributed to them. Consider the following statements.

50a. *The former Soviet Republic* has produced a catastrophic security mess that is at least as dangerous for the *them* as it is for the rest of the world.

b. *The former Soviet Republic* has produced a catastrophic security mess that is at least as dangerous for *Russia* as it is for the rest of the world.

In both sentences, the italicized phrases refer to *the former Soviet Republic.* In (a), *the former Soviet Republic* is construed as highly animate. Thus it is later referred to using the third person pronoun *them*. In (b), *the former Soviet Republic* is not construed as animate. Thus it is referred to using a proper name which identifies it as a geographic region. Yamamoto argues that speakers tend to conceive of generic noun phrases in a matter similar to that expressed in (b) rather than that expressed in (a).

Yamamoto also maintains that there are linguistic consequences associated with attributing animacy to an NP. These include reference to it using personal pronouns such as he and she, as is the case in (49), and occurrence in subject position. He argues that when construing an event one entity represents the focus of the event. In much the same was as Kuno's principle of empathy, the focussed entity represents the emotional or physical perspective of the speaker. Following such analyses as Kuno (1976), Yamamoto argues that the focussed entity tends to be expressed as the grammatical subject of a clause. Therefore, according to this analysis, animacy, or at least the appearance of agency, is a necessary condition of subjecthood. Overall, then, Yamamoto argues for a strict requirement regarding animate subjects but advances a broader definition of the concept. His claims regarding the relationship of animacy to discourse topic are limited to a brief discussion of the importance of the animacy hierarchy in which he claims agreement with such analyses as those by Givón (1984) and Mayhill (1992). As discussed below, these analyses indicate that animacy is an important criterion for discourse topic.

Several studies have shown that in many languages, noun phrases which are considered to be topic-related are more often animate than inanimate (Dahl & Fraurud 1996; Givón 1984; Mayhill 1992). For example, Cooreman (1992) reviews more than 50 pages of Chamorro written text and finds that 90% of animate referents are topic related whereas only 52% of non-animates are topic related. As expected, noun phrases with animate referents tended to have higher TP values than those with non-animate referents.

However, it is not clear as to how many of the animate referents in Cooreman (1992) referred to human entities. In their analysis of texts written in Swedish, Dahl and Fraurud (1996) identify grammatical subject position as the primary position for topic-related noun phrases. They find that 56% of the grammatical subjects which occurred in transitive sentences referred to human entities. Similar results have been obtained for English data. Brown (1983) analyzes a similar size sample of written English text and finds that noun phrases which refer to human referents have higher TP values than those which refer to non-human referents. Interestingly enough, Brown finds that noun phrases tend to refer to human referents rather than non-human referents regardless of the syntactic role or function of the noun phrase. If there is an inherent preference for speakers to encode human rather than non-human referents it would only make sense, then, that discourse topics would also tend to be human rather than non-human.

2.3.2 Grammatical Subjects and Word Order

This section focuses on the syntactic properties of topic-related noun phrases. For the most part, it is argued that these noun phrases tend to occur in sentence initial position. The different pragmatic and cognitive motivations for this phenomena are presented and compared. Finally the implication of the syntactic properties of topic-related noun phrases for grammatical subjects in English is discussed.

In the Functional Grammar analyses presented above, it was argued that the primary purpose of subjects is to provide a speaker/listener with a primary vantage point for a given state of affairs. It was also suggested that speakers select an entity to represent this perspective based on its potential for speakers' empathy (Kuno 1976). Furthermore, it was suggested that speakers find it easier to empathize with entities already established in the discourse than those which are not. Since topics, by definition, represent given information, this claim would seem to suggest, then, that topics are typically expressed as the grammatical subject of a sentence.

The claim that topic-related noun phrases tend to occur in subject position may, at first, seem to have some validity. For example, Hinds (1983) finds that in a sample of written Japanese, grammatical subjects which represent human referents had an average referential distance (RD) of 1.67. In other words, grammatical subjects were typically mentioned within the preceding two clauses. The same type of noun phrase occurring in object position had an average referential distance of 5.28, suggesting they are much less topic-related than noun phrases occurring in subject position. Similarly, Gasser (1983) finds that in a corpus of Amheric data the grammatical subjects had an average TP value of 2.13. That is, the grammatical subject tended to be mentioned an average of 2.3 times in the following 10 clauses. Objects, on the other hand, had an average TP value of 0.67. Again, the conclusion drawn from the data is that topic-related noun phrases tend to occur in subject position.

If a broader perspective is given to the issue, though, it can be seen that topic-related noun phrases tend to occur not in subject position, but rather in sentence initial position. In Mandarin, subject and object can occur in either pre- or post-verbal position. However, topic-related noun phrases tend to occur in pre-verbal position (Sun & Givón 1985). Specifically, Sun and Givón (1985) find that in a corpus of spoken and written Mandarin, preverbal elements have substantially lower RD values than their post-verbal counterparts. Similar observations are made by Rude (1992) concerning data from Nez Perce. In Nez Perce, neither subject nor object are marked using word order. Therefore, as in Mandarin, they may occur in either pre- or post-verbal position. Furthermore, Rude finds that noun phrases which occur in pre-verbal position have higher TP values than those occurring in post-verbal position.

Although there are few psycholinguistic studies regarding the relationship of discourse topics and grammatical roles, it has been shown that sentence initial position is a highly salient position which speakers attend to. Chang (1980), for instance, demonstrates that speakers spend significantly more time reading sentence initial elements than sentence internal elements. Unfortunately, Chang does not indicate what the information status or animacy of the sentence initial elements are. Moreover, the sentence initial phrase was also the grammatical subject of the clause. Thus Chang's results do not necessarily preclude the possibility that the amount of time speakers spend reading a noun phrase is related to the syntactic or semantic properties of the noun phrase.

Gernsbacher and Hargreaves (1992), on the other hand, examined speakers' attention to sentence initial position by presenting speakers with clauses containing preposed and postposed clauses. The presentation of each sentence was immediately followed by the presentation of an individual referent. Speakers were asked to indicate if the referent had occurred in the preceding sentence. Speakers' responses were, on average, fastest and most accurate when the referent occurred in the sentence initial phrase. Since referents were matched for animacy and information status, it can only be concluded that any effect was due to syntactic differences. Moreover, since the grammatical subject did not occur in sentence initial position, the effects found by Gernsbacher and Hargreaves can not be subject-related.

The results obtained by Chang and Gernsbacher and Hargreaves clearly indicate that sentence initial position is perceptually salient. Unfortunately, these studies do not identify the reasons why this position is perceptually salient. Taken together, though, the results obtained in these analyses provide some support for the claim that given information precedes new information because it is more important to the discourse. That is it seems clear that speakers attend to sentence initial position most. Moreover as shown by Rude (1992) topics, which represent given information, tend to be sentence initial.

Whether or not the most perceptually salient position in a clause is grammatical subject or sentence initial position may seem moot with respect to English. After all, the canonical word order pattern for English is SVO. However, as is shown in the next two sections, this issue has important consequences regarding the analysis of preposed objects and existential *there* sentences.

2.3.3 Preposed Objects

As pointed out in the previous section, sentence initial position seems to be the most perceptually salient position in a clause. Moreover, several analyses have been presented which suggest that topic-related noun phrases express the most salient information in the sentence. The logical consequence of these conclusions is that any element which occurs in sentence initial position must then represent the most salient topic-related information. If this is the case, then it would be expected that preposed objects would be more topical than that expressed by the grammatical subject.

This claim has been, in part investigated by Sun and Givón (1985) who claim that preposed objects, or Y-movement, is used to indicate contrastive topics. Contrastive topics are topics which although important have been temporarily supplanted by equally important information. The pragmatic purpose of Y-movement, then, is to re-establish a previous topic. As a result, preposed objects should, on average, have a lower RD value than topics occurring in grammatical subject position although both types of topics should have similar TP values. Sun and Givón (1985) do, in fact, find that in a corpus of spoken and written Mandarin preposed objects have an average RD value of about 2.5. Subjects which occur in sentence initial position, however, have an average RD value of less than 1. Unfortunately, Sun and Givón do not provide TP values for the grammatical objects nor do they provide any information regarding the semantic or pragmatic properties of the grammatical subjects which occur with the preverbal objects. Thus it can not be claimed that they represent information which is more topical than that represented by the subject.

As a result, the claims made by Givón regarding the nature of preposed objects are open to challenge. That is, it is entirely possible that preposed objects do not represent information which is more topical than that represented by the grammatical subject. In fact, Prince (1992) maintains that preposed objects represent new information. More importantly, if preposed objects represent new information, then they need not have the same semantic properties as discourse topics. At first this may seem to conflict with the fact that preposed objects tend to be definite rather than indefinite noun phrases. However, as Prince herself points out, new information may be semantically definite. The only criterion for considering information as being new is that it has yet to be established in the discourse. Moreover, if preposed objects do not represent topic-related information, they also need not be animate, or more importantly, more animate than the subject.

Mayhill (1992) provides data which supports the arguments outlined by Prince. Specifically, he finds that in a corpus of Tzotzil written narratives, preposed objects are more likely to occur when the subject is definite rather than indefinite. In fact the probability of a preposed object occurring with a grammatical subject which is a pronoun is .91. Personal pronouns are typically considered as very topical since they are both definite and animate. Thus it would seem that the grammatical subject is more likely to be topical than the preposed object. On the other hand, Mayhill does find that the probability of a preposed object representing an animate entity is .61. This may be interpreted as indicating that although not more definite than the grammatical subject, preposed objects are more animate. Also, .61 is not a high probability given the fact that noun phrases tend to be animate rather than inanimate regardless of their grammatical position (Brown 1983).

In his text count study, Mayhill also determined the percentage of preposed objects which occurred with grammatical subjects that occurred in the following sentence. He found that the probability of a preposed object occurring in this situation was only .47. In other words, half of the sentences containing preposed objects had grammatical subjects which were repeated in the subsequent clause. Since these grammatical subjects occurred in the following clause, it may be assumed that they were, to some extent, topic-related.

These results may be interpreted as indicating that preposed objects need not be topic related. Rather, they may, as proposed by Haberland and Thomsen (1994), represent focus information. This would also be consistent with the processing constraints proposed by Chafe (1996), since it indicates that grammatical subjects are topic related, and hence accessible, regardless of the status of the grammatical subject. Such an interpretation would assume that the preposed object was not more topic-related than the grammatical subject.

It is also possible that there is more than one level of topicality (Givón 1984). If this is the case, it is possible for the preposed object to be more topical than the grammatical subject. Unfortunately, Mayhill's measurement of the grammatical subject's topicality is limited and it is not possible to establish its full potential as a topic-related noun phrase. Also, Mayhill does not provide any measurement regarding the topicality of the grammatical object. Thus it can not be ascertained if it is indeed more or less topical than the grammatical subject.

Overall, Mayhill's results appear to be more consistent with those analyses which consider preposed objects as representing focus information rather than topic or topic related information. However, since no direct measurement of the topicality of the preposed object is provided, this remains indirect evidence at best. Regardless of whether it confirms a particular theoretical perspective or not, Mayhill's results indicate that any analysis of preposed objects must also involve an analysis of the accompanying grammatical subject. Moreover it seems likely from the results of Mayhill (1992) and Brown (1983) that animacy, although typologically important, is not an exclusive property of topic-related noun phrases.

2.3.4 Existential *There* Sentences

Compared to the other constructions discussed in this study, existential *there* sentences remain relatively unstudied. They are, for the most part, presumed to be presentative (Chafe 1992; Prince 1992; Ward & Birner 1995). That is, their purpose is to present or assert the existence of the referents and/or propositions which occur post-verbally. Moreover, the post-verbal NP is typically considered as being indefinite because definite noun phrases already presuppose the existence of their referents. Thus the semantic properties of a definite noun phrase would conflict with the discourse function of existential *there* sentences. The analyses presented in this section present alternative restrictions/motivations for the post-verbal NP of existential *there* sentences. On the one hand, there are those who maintain that the purpose of these sentences is to introduce potential topics into the discourse (Givón 1984, 1995). On the other hand, there are those who maintain that the relevant restriction on the post-verbal NP is a matter of information status rather than of definiteness (Prince 1992; Ward & Birner 1995). Finally, it has been shown that neither of these characterizations of the post-verbal NP of existential *there* sentences is adequate (Abbott 1993).

As mentioned, Givón (1995) maintains that an adequate account of existential *there* sentences can only be given by exploring their relationship to discourse topics. The specific claim which is made is that existential *there* sentences are used to introduce a new topic into the discourse. As a result, post-verbal NPs of existential *there* sentences will have RD values of 0 but should have average TP values consistent with established discourse topics. Very few quantitative studies have been done regarding existential *there* sentences. Perhaps the most comprehensive one is that discussed in Givón (1995). Givón reports that in his corpora of short texts written in English, all the post-verbal NPs of the existential *there* sentences refer to entities which are new to the discourse. Moreover, he finds that the existential *there* sentences occur at the beginning of the text and that the post-verbal noun phrases of these sentences tend to represent the main topic of the following discourse. Thus he concludes that the purpose of existential *there* sentences is to introduce a new topic into a discourse. He also finds that the post verbal noun phrase contained either the indefinite article *a* or what he interprets as an unstressed *this*. As a result, he claims that the post-verbal noun phrase is not just a new topic, but also a non-accessible or unfamiliar referent.

However, Givón's conclusions are somewhat premature. His examination of existential *there* sentences is based on a small collection of short, edited letters written to an advice column. It is reasonable to expect that the writers of these texts would assume that any referent introduced into the discourse would be unfamiliar to the reader. It would not be surprising, then, if it were discovered that these texts contained a much higher proportion of indefinite noun phrases than that found in other written texts. Moreover, the function of existential *there* sentences in discourse initial position may not be the same as those which occur discourse internally.

Most importantly, it has been shown that it is possible for the post-verbal noun phrase of an existential *there* sentence to have a definite article. Consider the sentences in (51).

51a. There was the usual crowd at the beach.
b. There was the prettiest girl at the party.
c. There is always tomorrow.

Each of the sentences presented in (51) is acceptable despite the fact that the post-verbal NP is a definite noun phrase. Prince (1992) argues that this is because the relevant restriction on the post-verbal noun phrase is not a semantic one, but a pragmatic one. Specifically, she claims that the post-verbal NP of existential *there* sentences is restricted to those NPs which represents new information.

As already mentioned, new information is a broader concept which although tends to be indefinite, may also be definite. This is because the concept of given and new information can be further divided into *hearer old & new* and *discourse old & new* information (Prince 1992; Ward & Birner 1995). A referent which is hearer-old is assumed to be already known to the listener either because of the current discourse situation or because of previous discourse situations or experiences. That which is hearer new is assumed to be unfamiliar to the listener. Referents which are discourse-old are not only assumed to be known to the listener, but have already been introduced into the current discourse situation (Prince 1992). Therefore, information which is discourse-old must be hearer-old but can not, obviously, be hearer-new. A referent which is discourse-new, on the other hand, is a referent which is a referent which is new to the discourse and may be either hearer-new or hearer-old (Prince 1992). Only those referents which are hearer new tend to be expressed using an indefinite article. Thus it is possible for discourse-new information to occur in a noun phrase containing a definite article.

Ward and Birner (1993) provide an analysis of 100 English existential *there* sentences taken from naturally occurring spoken language. Although they do not provide any exact figures in their analysis, they conclude that "In each case, ... the there-[are] construction is licensed by the hearer-new status of the [post-verbal] referent (Ward & Birner 1995:729). Thus they conclude that the relevant constraint on existential *there* sentences in English is that they represent discourse-new information. However it is important to point out that Ward and Birner recognize five different classes of hearer-new referents which include those given in (52)

52a. A hearer-old referents treated as hearer-new.
b. A hearer-new token of a hearer-old type.

Ward and Birner claim that when a post-verbal NP of an existential *there* sentence occurs with a definite article it indicates that the referent is both hearer-old and hearer-new. As Abbott (1997) points out, though, a referent can not be both hearer-old and hearer-new. That is, once a referent is made familiar to a speaker, it may be discourse new, but it will always be hearer-old. Moreover, Ward and Birner's definition of this category is tautological. That is, the fact that the referent occurs as a post-verbal NP is the justification for considering it as being hearer-new.

Ward and Birner also claim that if a post-verbal NP of an existential *there* sentence introduces a new referent which is in some way related to an established referent, it represents a hearer-new token of a hearer-old type. However, if the existence of a referent can be inferred from an already established referent, then it is said to be inferrable or evoked (Prince 1981a, 1981b; Ariel 1985). Referents which are inferrable or evoked represent a type of given information. As already pointed out, given, or discourse-old, information can not be hearer-new but instead must be hearer-old.

Upon closer examination, then, it seems that at least two of the categories of hearer-new information used by Ward and Birner do not necessarily conform to the traditional descriptions of old and new information and are, in fact, contradictory to their intended meanings (Abbott 1997). As a result, it appears that the post-verbal NP of existential *there* sentences may represent either given or new information. Thus it does not appear that the relevant constraint on the occurrence of existential *there* sentences in English is solely based on principles of information status.

Abbott (1993, 1997) agrees that existential *there* sentences are presentational in nature, but contra Prince (1992) and Ward and Birner (1995) argues that the definiteness or information status of the post verbal NP is not an issue. Instead, she argues that there are two types of existential *there* sentences, each of which presents different types of information. Sentences such as those in (53) tend to present information which is not part of the discourse context.

53a. There is a book *I want to read this summer.*
b. There was a pair of scissors *in that drawer.*
c. *Tomorrow*, there will be an eclipse.

A characteristic property of these sentences is that they contain phrases or other referents than just the grammatical subject. In (53a), the additional element is the italicized relative clause whereas in (53b) it is a prepositional phrase. This additional information helps to relate the new information predicated by the grammatical subject to the discourse situation at hand or to provide some justification for it being mentioned. As Abbott (1993) points out, rarely, if ever, do existential sentences such as '*There is a book*' occur in natural discourse.

The second type of existential *there* sentences, present information which is already familiar to the listener. As such, these sentences do not need additional elements. Consider the short discourses presented in (54).

54a. A: Is there anything good to eat?
B: There is the left-over chicken.

b. A: Who else can we invite?
B: There is still Ahmed and Sharifa.

c. A: I don't know where else we can go for dinner.
B: There is Moxie's.

In each case the relevant context for the existential *there* sentence is external to the sentence but still within the discourse itself. These sentences, rather than introduce new information, tend to remind the listener of the predicates existence (Abbott 1993). Because existential *there* sentences are existential, it is reasonable to expect that they will contain NPs which do not in themselves predicate existence, i.e., indefinite and non-referential NPs. However, as the sentences in (54) demonstrate, it is equally possible for existential *there* sentences to contain post-verbal NPs which predicate familiar referents and thus also be definite.

A common feature of the analyses discussed above is the assumption that existential *there* sentences have a presentational function. However, they all argue for different characterizations regarding the restricting property of these sentences. Moreover, each of these analyses, except that given by Abbott (1993, 1997) is unable to provide a satisfactory or unified account of existential *there* sentences. Only the analysis given by Abbott seems potentially able to account for all instances of these sentences. It is not a coincidence that her analysis is also the only one which combines structural, semantic, and pragmatic factors. Although she claims to agree with the assumption that existential *there* sentences are presentational, she repeatedly refers to them as a construction or structure which serves to "draw the addressee's attention to the existence and/or location of [an] entity" (Abbot 1993). As is demonstrated in the next chapter, this statement is an accurate description of the pragmatic function of existential *there* sentences in discourse.

2.4 Conclusion

The purpose of this chapter has been to review the literature and highlight the issues associated with the different theoretical perspectives on discourse topics, grammatical subjects, preposed objects and existential *there* sentences. Structural analyses treat preposed objects and grammatical subjects of existential *there* sentences as distinctly separate phenomena. These analyses unsuccessfully attempt to reduce the notions of reference and definiteness to a set of opposing syntactic configurations which at best only apply to the post-verbal NPs of existential *there* sentences.

Functional Grammar analyses of subject and topic lead to conflicting claims regarding preposed objects. On the one hand it is argued that preposed objects represent topic-related information. Yet it is shown that grammatical objects which are sentence topics need not occur sentence initially. Thus they can not offer any principled motivation for their occurrence in sentence initial position. If, on the other hand, preposed objects represent focus information, then they should share the same semantic properties as post-verbal NPs of existential *there* sentences. However this is clearly not the case since preposed objects tend to be definite and post-verbal NPs tend to be indefinite. Moreover, the claim that existential *there* sentences lack an internal topic and therefore express only new information can easily be disproved. That is, it is possible for the post-verbal NP of an existential *there* sentence to be a topic and hence represent given information.

The final sections of this chapter present a comparison of pragmatic-based analyses and typology-based analyses of preposed objects and post-verbal NPs of existential *there* sentences with those which propose that these properties are a result of information processing constraints.

Although similar, these two approaches provide conflicting conclusions as to the properties of preposed objects and existential *there* sentences. On the one hand, it is argued that preposed objects represent topic information and that existential *there* sentences are used to introduce new topics. The data used to support these claims, though, is, at best, incomplete. On the other hand, it is claimed that preposed objects and existential *there* sentences represent new information. Unfortunately, the definition of new information which is employed is itself suspect and casts doubt on the validity data used to support the analysis.

Chapter 3 Current Analysis

3.0 Introduction

The purpose of this chapter is to develop an alternate analysis of preposed objects and existential *there* sentences to those provided in the previous chapter. It is argued the analysis developed here is better able to account for their syntactic, semantic and pragmatic properties of these constructions than a purely structural, functional, or typological one. The implications of this analysis regarding the semantic properties of these constructions is then discussed and reduced to set of research questions which can be quantitatively evaluated.

3.1 Theoretical Background

The analysis presented in this chapter is motivated by the assumption that the syntactic and semantic organization of linguistic constructions is determined to some extent by cognitive processing constraints. Even if language represents a separate module as argued by Fodor (1989), it is embedded within a larger psychological matrix of cognitive processes. As a result, language processing is subject to the cognitive limitations of short term memory, focal attention and inference. The analysis presented below attempts to demonstrate that the semantic, syntactic, and pragmatic properties of grammatical subjects are motivated by a desire to minimize the cognitive burden of processing discourse.

3.1.1 Principles of Information Flow

The analysis presented here is based largely on the theory of information processing developed by Chafe (1976, 1992, 1996). Chafe argues that clauses tend to be organized so that they express a preferred *flow of information*. That is, constituents are organized so as to optimize the integration of new information into a discourse or mental model. Moreover, he argues that the optimal manner in which information is integrated is determined by cognitive principles. These principles reflect the way speakers are able to best exploit their cognitive resources during language processing. Furthermore these principles organize constituents based on their semantic and pragmatic properties.

A central principle of his theory is the *light subject constraint* (Chafe 1976). Simply put, the light subject constraint expresses the claim that grammatical subjects tend to represent information which is accessible to a speaker/listener. As mentioned in the previous chapter, accessible referents are those which have been established in a discourse model or which are somehow salient to a speaker/listener. However, the most accessible information is that which is already in *focal consciousness* (Chafe 1992). Information which is in a speaker's focal consciousness is that information which has the immediate attention of a speaker.

Referents which are accessible present speakers with a lower activation cost. That is, speakers require fewer cognitive resources in order to access the mental representation of the intended referent. This facilitates the processing of linguistic information in two ways. First, it allows for more resources to be available for processing incoming linguistic information. Second, speakers are able to quickly establish a reference point within the existing discourse model (Chafe 1996). Establishing a reference point ensures that speakers will integrate any new or incoming information into the existing discourse model. It also prepares the listener to integrate this information more efficiently. These affects are, of course, most advantageous if the accessible information precedes that which is less accessible. Since grammatical subjects tend to occur in sentence initial position, they tend to represent these referents.

As already mentioned, information which has been previously established in a discourse is more accessible than that which hasn't. Moreover, information which has recently been mentioned is more easily activated than that which has passed from focal or even peripheral consciousness. As discussed in the previous chapter, information which tends to be repeated in a discourse is usually topic-related (Brown 1983; Givón 1983). Thus topic-related noun phrases should be more accessible than those which do not represent topic-related information. The implication, then, is that grammatical subjects should tend to represent topic-related information.

Several studies discussed in chapter 2 present results which would seem to contradict the claim that topic related information tends to be expressed as the grammatical subject. Specifically Rude (1992) and Sun and Givón (1985) present data which indicates that topic is actually associated with sentence initial position. However, these analyses involve languages which have freer word order than English. Thus it is possible for topics to occur separately from grammatical subjects. This does not necessarily invalidate the light subject constraint since this constraint represents a default organization of a clause and is not an absolute restriction. Secondly it is possible that the light subject constraint in free word order languages is actually a constraint on sentence initial position. However, since English is a rigidly SVO language, the constraint has become associated with grammatical subjects rather than sentence initial position.

A second principle associated with Chafe's theory of information processing is the *one-new-idea constraint*. Essentially, Chafe maintains that each clause will contain only one new idea or piece of information. New information may include introducing a new referent into the discourse or introducing a new proposition related to one or more referents already established in the discourse model. Chafe argues that speakers have limited cognitive resources and that asking speakers to process more than one new piece of information may exceed the limits of these resources. If this were to happen, the new information may not be processed. Thus it is to the speakers' advantage that they restrict the amount of new information each clause contains.

3.1.2 Implications for Existential *There* Sentences and Preposed Objects

The analysis discussed in the previous chapter attempt to account for the semantic properties of post-verbal NP of existential *there* sentences and preposed objects by examining their information status or their relationship to the discourse topic Although these analyses represent a wide range of approaches, a successful account of these noun phrases has not yet been developed. In this section I will argue for a broader view of these constructions similar to that suggested by Abbott (1993). That is, the primary function of these sentences is to emphasize important information. Moreover, the analysis which I provide is consistent with the cognitive processing principles outlined above.

As already stated, this analysis advocates the view that existential *there* sentences are used by speakers to emphasize information. Given the theoretical perspective of this analysis, the primary questions which this statement raises are 1) what are the cognitive requirements for emphasizing information and 2) how can this type of structure ensure that these requirements are met. According to Chafe (1996) the purpose of emphasizing information is to ensure that this information becomes the object of a speakers' focal attention. In spoken discourse this is often accomplished by placing greater stress on the relevant noun phrases than it otherwise would receive. In written discourse, though, this method is not possible. However the use of an existential *there* sentence can accomplish the same objective. Typically, the grammatical subject, which occurs in sentence initial position, represents the most accessible information. The reason for this is that it does not consume valuable cognitive resources needed to process incoming information. In an existential *there* sentence, though, the initial noun phrase is a semantically empty *there*. As a result, the listeners' focal attention is not compromised and is fully focussed on the post-verbal noun phrase.

As stated above, a second function of grammatical subjects is to provide a point of reference within the discourse model which a listener may use to integrate information. This is not possible with existential *there* sentences since the initial noun phrase of these constructions are semantically empty. Instead, the article is used to indicate the cognitive status of the referent. Entities which are already in focal attention tend to be expressed using a pronoun (Gundel, Hedberg, & Zacharski 1993). Entities which are not in focus, but are identifiable to a listener are expressed using a definite article.

As already pointed out, that although the post-verbal NPs of existential *there* sentences tend to be indefinite, they may also be definite. However, they rarely, if ever, are a pronoun. The reason for this is that pronouns are used to represent information which is already in focal attention. Thus it would be redundant to use it in an existential *there* sentence. Instead, the post-verbal NPs of these sentences tend to be those which are less accessible or more generally, less subject-like. Moreover, because of the relationship between accessibility, discourse topics, and information status, this can be interpreted as meaning that post-verbal NPs tend to be less topic-related or represent information which is less given than that typically represented by the subject.

It can also be argued that the pragmatic function of preposed objects in English is similar to that of post-verbal NPs of existential *there* sentences. That is, preposed objects tend to represent information which a speaker wishes to emphasize. Again, the question arises as to how does this structure facilitate this function. In the previous chapter it was shown that sentence initial position is perceptually salient (Chang 1980; Gernsbacher & Hargreaves 1992) That is, speakers tend to focus on information which occurs in clause initial position more than that which is presented clause internally. Therefore it seems reasonable to assume that if a speaker wishes to emphasize information which is not topic-related, they would place that information in a salient position, i.e., clause initially. Thus, it would seem that the purpose of preposed objects is to emphasize information which may otherwise be construed as unimportant.

As already stated, preposed objects tend be semantically definite. As a result, it was argued that these noun phrases tend to represent topic information (Givón 1994). On the other hand, it was argued that if an object, or an A^2 argument, were to represent topic information, the resulting construction would be a passive sentence. Thus preposed objects are restricted to representing focus information (Haberland & Thomsen 1994) Here, it is argued that preposed objects do not represent either topic or focus information. As stated in the discussion of existential *there* sentences above, it would be redundant to emphasize highly accessible information which would otherwise naturally occur as a grammatical subject. Nor do they tend to represent focus information in the sense that they represent new information which the speakers assumes the listener needs to attend to.

Instead, it seems that preposed objects occur most felicitously when they occur in a contrastive sentence. This should not be confused with the claim that they represent contrastive focus. The condition for contrastive topicalization was that the preposed noun phrase represents a previous topic which the speaker wishes to re-establish. Instead, the term contrastive refers to the sentence as a whole. Consider the sentences in (55). which are typical of the sentences containing preposed objects discussed in the literature.

55a. Lee likes carrots, but *celery* he can't stand.
b. Kyle remembered his keys, *his wallet* he forgot.
c. Lahtifa closed the windows, *the door* she left unlocked.

These sentences are typical of the sentences which discussions of preposed objects refer to (Prince 1981c; Givón 19983, 1994; Haberland & Thomsen 1994). Moreover, each sentence includes a felicitous use of a preposed object. In each case, the grammatical subject of the first clause represents the overall topic of the sentence. However the preposed object in the second clause, shown here in italics, does not contrast with this noun phrase. Nor does the preposed object necessarily contrast with the grammatical object of the first sentence. What is contrastive here, is the relationship expressed by the verb in each clause.

The point here is that the preposed objects in (55) do not represent a contrastive topic. Nor do they represent new or unaccessible information. In each case the preposed object is similar enough to the grammatical object of the preceding clause so that it is evoked. Thus it is expressed using a definite article. Furthermore, if the preposed objects in (55) did represent new information, as in (56), then these sentences would violate the *one-new-idea* constraint.

56a. ?Kyle remembered his keys, *a wallet* he forgot.
b. ?Lahtifa closed the windows, *a door* she left unlocked.

The result of this violation is that the sentences in (56) are at best, only marginally acceptable. Therefore, it is most likely that these objects will represent information which is accessible, but not to the same extent as that predicated by the grammatical subject.

3.2 Research Questions

The analysis presented above can be summed up by the following statements. According to the theory of the flow of information, grammatical subjects, in English at least, should represent the most accessible information encoded in the clause. This information is typically that which is topic-related. Existential *there* sentences ensure that speakers are cognitively prepared to focus on the post-verbal information. Preposed objects on the other hand, tend to represent non-topic related yet otherwise accessible information which the speaker wishes to emphasize. As a result, they tend to not to be topic-related and thus should have lower TP values than those associated with topic-related noun phrases but have higher values than non-preposed objects.

The notion that grammatical structures are organized so as to maximize the integration of new information has been given some empirical support. In her review of a short text written in English, Prince (1992) finds that only 6% of the grammatical subjects represented new information. Moreover, Chafe (1992) finds that more than 70% of the clauses contained in the same text predicate only one new piece of information. Of those which contained more than one new piece of information, most contained only one new referent. Thus he concludes that discourse is organized so as to minimize the burden of discourse on a speakers cognitive resources. Since both the *light subject constraint* and the *one new idea* constraint are based on cognitive processing limitations, Chafe maintains that they represent a potentially universal theory of language processing.

Although the analyses presented by Chafe and Prince provide support for Chafe's theory regarding the flow of information, they have some important limitations. Specifically, their analyses are based on a limited corpus consisting of a two page fund-raising letter. Thus their results may, to some extent, be data specific. Secondly, their analyses assume that frequency of occurrence is a direct measurement of speakers' preferences. Neither do they, or anyone else, directly address the consequences of their analyses for preposed objects and existential *there* sentences. What is needed then, is an analysis which makes use of a larger and more varied data set and which directly addresses the following questions.

> Do discourse topics and/or grammatical subjects tend to be animate, definite, or referential?
>
> Do grammatical subjects tend to be more topic-related than objects?
>
> Do speakers prefer preposed objects and post-verbal NPs of existential *there* sentences to have the same syntactic and/or semantic properties as topic-related noun phrases or not?

The first question reflects the need to determine the semantic and syntactic properties of grammatical subjects and discourse topics. The answers to the second question will indicate whether or not grammatical subjects consistently represent discourse topics. The last of these questions will indicate if preposed objects and post-verbal NPs of existential *there* sentences have the same syntactic and semantic properties as focus information, topic information or non-focus information which a speaker wishes to emphasize. It is precisely these three questions which are addressed in the following sections which examine speakers' preferences regarding the semantic and syntactic properties of discourse topics, grammatical subjects, preposed objects, and existential *there* sentences.

3.3 Conclusions

The analysis of discourse topics, grammatical subjects, preposed objects, and existential *there* sentences presented in this chapter differs from those presented in the previous chapter in several ways. One, is that in this, analysis cognitive processing strategies are considered as being a primary motivation for the displacement of grammatical subjects and objects. Two, it is argued here that neither preposed objects nor existential *there* sentences are necessarily used to express (potentially) topic-related information. Instead, it is argued that existential *there* sentences are a syntactic device used to focus a speaker's attention on the post-verbal NP. Preposed NPs, on the other hand, tend to represent information which has not yet been explicitly stated, but which is accessible given the preceding discourse. As a result, neither preposed objects or post-verbal NPs of existential *there* sentences tend to be semantically or pragmatically similar to non-displaced grammatical subjects or discourse topics. Finally these claims were reduced to a set of specific research questions which can be quantitatively examined.

Chapter 4 Empirical Data

4.0 Introduction

The purpose of this chapter is to present data which addresses the analysis of existential *there* sentences and preposed objects given in the previous chapter. The data presented here were gathered using several different data collection techniques, each of which is described in detail and includes a description of the procedures and stimuli used. The data are then analyzed using several different statistical procedures and the implications of the results obtained for the issues at hand are discussed. Preceding this, however, is a brief discussion of the methodological considerations relevant to this study.

4.1 Methodological Considerations

The analysis presented in the preceding section raise some interesting methodological questions. The first is concerned with determining which data collection techniques are most appropriate for measuring speakers' preferences and behaviours. Traditionally, analyses in this area have used text count data. The advantage of text count data is that it is readily available and tends to adheres to the linguistic conventions of the language community. However, analyses which make use of text count data often make the assumption that the frequency with which a construct occurs is directly related to speakers' preferences for that construction. Although this may be true in many cases, it has been observed that this is not always the case (Croft 1990). Therefore, this study makes use of additional data collection techniques. A forced-choice paradigm is used here to provide a means of directly measuring speakers' preferences regarding the semantic properties of the various constructions. A production task is used in the final data collection technique which allows speakers to pursue a natural course of behaviour but at the same time constrain the factors which motivate that behaviour.

A second methodological issue which must be dealt with in this study concerns the representation of definiteness, reference, and information status in English. The problem here is that in English the same grammatical devices are used to express all three concepts. However, it was shown in the previous chapters that these concepts are not necessarily equivalent. To further complicate matters, it has been demonstrated that noun phrases which contain a definite article may in fact be semantically indefinite (Löbner 1985).

It is clear from the discussions in Chapter 2 that information status and definiteness are semantically and pragmatically related. Specifically, it is a consequence of given information that it also be definite (Prince 1981). This does not mean, though, that new information need by expressed as an indefinite noun phrase (Ariel 1985). It is possible for information to be familiar or even accessible because of previous discourses or shared experiences yet not be established in a discourse. Thus, although definite, these referents would represent new information the first time they are mentioned in the discourse.

In this study, the terms definite and indefinite are applied to referential noun phrases only. In the following text count study, noun phrases coded as definite are those referential noun phrases which represent information which has either been established in the discourse (or can be inferred from the existence of already established referents) or those which the writer reasonably expects the reader to understand already exists because they represent shared knowledge. The term indefinite, on the other hand, will only be applied to information which is not established, inferrable, or accessible regardless of its specific marking. However in order to provide maximum clarity and to reduce any possible confounding effects, the definite noun phrases used in the remaining data collection techniques contain a definite article and refer to referents which are accessible and have been textually established. Indefinite noun phrases, on the other hand, contain an indefinite article and predicate information which is not textually established, inferrable, or accessible.

4.2 Text Count Studies

This text count study has two main objectives. The first is to determine what semantic properties are typical of grammatical subjects and objects. This is accomplished by determining what percentage of these noun phrases are animate, definite, and non-referential. The second is to determine if noun phrases in subject position tend to be more topic-related than those in object position. In order to achieve these objectives, random samples of two texts were taken to provide a sampling of approximately 1500 clauses. The two texts differ in narrative style, involve different levels of lexical complexity, and belong to different sub-genres. The first text, *No Fixed Address* (van Herk, 1987), is a full-length novel written in the third person narrative and contains a wide range of lexical items and syntactic structures. The second text, *Umney's Last Case* (King 1998), is a short story written in the first person which makes extensive use of colloquial expressions, interpersonal dialogue, and tends to involve extremely high frequency lexical items.

4.2.1 Materials and Procedures

Approximately 500 finite clauses from the first text and 1300 finite clauses from the second text were examined. The clauses examined occurred sequentially within their respective texts. The grammatical subjects, objects and, in the case of existential *there* sentences, the post-verbal NP of each finite clause was identified and then classified according to the criteria given in table 1.

Table 1. Categories of subjects and objects occurring in pre- and post-verbal position

DH	Definite noun phrase representing a human entity
DN	Definite noun phrase representing a non-human entity
IH	Indefinite noun phrase representing a human entity
IN	Indefinite noun phrase representing a non-human entity
GH	Generic noun phrase representing a human entity
GN	Generic noun phrase representing a non-human entity
EH	Existential noun phrase representing a human entity
EN	Existential noun phrase representing a non-human entity

The Topic Persistence (TP) value for each noun phrase was measured by determining the number of times its referent either occurred or was referred to in the following 20 clauses. The Anaphoric Reference (AR) value was used to indicate the definiteness of each noun phrase type. It was measured by determining the number of times the referent of the noun phrase occurred or was referred to in the preceding 20 clauses. These two measures were combined to produce a measure of each noun phrase's overall topicality.

4.2.2 Scoring and Data Analysis Techniques

The two data sets were analyzed separately. First, the number of times each noun phrase type occurred in each grammatical position was determined. Second, the number of animate and inanimate noun phrases occurring in each position was also determined. The average TP and AR values associated with each category in each grammatical position was then calculated and added together to provide an overall average measure of topicality (OAT) for each category of noun phrase in each grammatical role.

Chi-square tests for independence were used to compare the frequencies of each type of subject noun phrase with the frequency of the corresponding object noun phrase type. The same procedures were used to compare the OAT values of each subject type to those of the corresponding object type. In order to minimize the discontinuity of the theoretical frequency curve, the Yates correction for discontinuity was used when a cell mean was less than 5 (Ferguson & Takane 1989). The level of significance for these tests was set at $p<0.05$. Existential *there* sentences were not included in the Chi-square tests because so few of them occurred in the data. Moreover, not all types of noun phrases occurred in post-verbal position.

4.2.3 Results

The frequency with which each noun phrase type occurs in each grammatical position is given in tables 2, 3, and 4 below. These values are also expressed as a percentage of the overall number of noun phrases occurring in each grammatical position so as to provide a basis for comparison. The average AR and TP values for each noun phrase type is also given.

Table 2. Frequency and topicality of noun phrase types in Text Sample 1

	Number of Occurrences		% of Subject Noun Phrases		Topic Persistence		Anaphoric Reference		Overall Topicality	
	Subj	Obj.	Subj	Obj.	Subj	Obj.	Subj	Obj.	Subj	Obj.
DH	406	39	80.24	25.16	9.88	5.97	9.00	7.12	18.88	13.09
DN	51	55	10.08	35.48	0.65	0.95	0.82	0.73	1.47	1.68
IH	0	3	0.00	1.94	n/a	1.30	n/a	0.00	n/a	1.30
IN	0	25	0.00	16.13	n/a	0.48	n/a	0.04	n/a	0.52
GH	15	1	2.96	0.65	0.33	0.00	0.13	0.00	0.47	0.00
GN	18	18	3.56	11.61	1.63	0.33	0.44	0.06	2.07	0.39
EH	4	0	0.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EN	12	14	2.37	9.03	0.50	0.57	0.33	0.36	0.83	0.93
Total	506	156								
H	425	43	83.99	27.56	2.55	1.82	2.28	1.78	4.83	3.60
N	81	112	16.01	72.44	0.70	0.58	0.40	0.30	1.10	0.88
Total	506	156								

Table 3. Frequency and topicality of noun phrase types in Text Sample 2

	Number of Occurrences		% of Subject Noun Phrases		Topic Persistence		Anaphoric Reference		Overall Topicality	
	Subj	Obj.	Subj	Obj.	Subj	Obj.	Subj	Obj.	Subj	Obj.
DH	907	99	69.24	23.85	9.42	10.21	7.86	9.02	18.28	19.23
DN	259	190	19.77	45.78	0.83	0.96	0.79	0.76	1.62	1.72
IH	3	3	0.23	0.73	1.00	0.75	0.00	0.00	1.00	0.75
IN	7	17	0.54	4.10	0.29	0.65	0.00	0.00	0.29	0.65
GH	37	6	2.82	1.44	1.08	0.00	0.70	0.00	1.78	0.00
GN	43	83	3.29	20.00	1.79	0.30	0.58	0.00	2.37	0.30
EH	16	1	1.22	0.24	0.31	0.00	0.00	0.00	0.31	0.00
EN	38	16	2.90	3.86	0.66	0.63	0.32	0.38	0.98	1.01
Total	1310	415								
H	963	109	76.51	26.26	2.90	2.74	2.14	2.26	5.04	5.00
N	347	306	23.49	73.74	0.89	0.64	0.42	0.29	1.32	0.93
Total	1310	415								

4.2.3.1 Grammatical Subjects and Objects

Overall, both text samples yield similar results regarding subject position. That is, the frequency with which each noun phrase type occurs is similar between the two samples. An exception to this trend is the higher percentage of definite noun phrases which refer to non-animate entities (DN) in the second data sample. The second sample also had a lower percentage of definite noun phrases which referred to human entities (DH) than the first text sample. Also, there are no occurrences of indefinite noun phrases (IN and IH) in subject position in the first data sample. In both samples it was found that grammatical subjects tended to be definite noun phrases which referred to human entities (DH). These noun phrases also tended to have the highest AR and TP values. The second most common type of subject noun phrase were those which were definite and referred to a non-animate entity (DN). However, grammatical subjects which predicated generic reference of non-animate entities (GN) had a higher OAT value than those which predicated definite reference of a non-animate entity. Indefinite noun phrases occurred least frequently in subject position. Also, noun phrases which predicated generic reference to a human referent (GH) tended to occur more frequently in subject position and have higher TP values than those which predicated existential reference to human entities (EH).

The were only two major differences between the two samples with respect to the different types of grammatical objects. First, there were proportionately fewer occurrences of non-animate definite noun phrases in text sample 1 than in text sample 2. Second, there were proportionately more occurrences of animate definite noun phrases in text sample 1 than in text sample 2. Third, there were proportionately more occurrences of generic non-animate noun phrases in object position in text sample 2 than in text sample 1.

In both samples, it was found that objects most often tended to be definite noun phrases which referred to non-animate entities (DN). However, these noun phrases tended to have the second highest TP and AR values out of all the types of object noun phrases. Object noun phrases which were definite and referred to a human entity had higher TP and AR values even though they were less common. The least common types of noun phrase found in object position were indefinite noun phrases, existential noun phrases, and generic noun phrases which referred to a human entity (IH, EH, and GH). Object noun phrases which were indefinite but referred to a human entity were among the least common to occur but had higher TP and AR values than most other types of object noun phrases.

4.2.3.2 Grammatical Role and Semantic Properties

According to the Chi-Square analyses presented in tables A1-A5, appendix A, definite noun phrases which referred to human entities (DH) tended to occur significantly more often in subject position than in object position. Similarly, in text sample 2, indefinite noun phrases which referred to non-animate entities (IN) tended to occur in object position significantly more often than in subject position. Moreover, indefinite noun phrases tend to represent non-human entities significantly more often than they did human entities. Also, non-referential noun phrases which referred to a human entities (GH and EH) tended to occur significantly more often in subject position than in object position. As well, generic and existential noun phrases in object position tend to represent non-human entities rather than human entities. Overall, noun phrases in subject position tend to predicate human referents rather than non-human referents whereas noun phrases in object position, tended to predicate non-human referents rather than human referents.

4.2.3.3 Grammatical Role and Topicality

As shown in tables 3 and 4, TP and AR values tended to be higher for noun phrases occurring in subject position than for similar noun phrases occurring in object position. However, according to the results of the Chi-Square analyses presented in tables A6-A10, appendix A, this difference, is for the most part, not significant. In other words, definite noun phrases which referred to human entities in subject position did not have significantly different OAT values than those which occurred in object position even though they tended to occur less frequently in object position than in subject position. This trend is true for all types of noun except generic noun phrases which referred to non-animate entities. It was found that these noun phrases tended to have significantly higher OAT values when they occurred in subject position than when they occurred in object position.

4.2.3.4 Existential *There* Sentences

As indicated below in table 4, generic noun phrases which referred to non-human entities (GN) were the most common type of post-verbal NPs in existential *there* sentences. There were no observed occurrences of definite, indefinite, or existential noun phrases which referred to a human entity in post-verbal subject position in either data set. Indefinite and non-referential noun phrases which referred to non-human entities were among the most frequent type of post-verbal subjects. However the indefinite noun phrases tended to have higher TP and AR values than the other two types of noun phrases. Overall, post-verbal noun phrases of existential *there* sentences tend to refer to non-animate and non-referential entities rather than to animate and referential ones.

Table 4. Topicality and frequency of post-verbal NPs in existential *there* sentences in Text Samples 1 & 2

	Number of Occurrences		% of Subject Noun Phrases		Topic Persistence		Anaphoric Reference		Overall Topicality	
	Sample		Sample		Sample		Sample		Sample	
	1	2	1	2	1	2	1	2	1	2
DH	0	0	0.00	0.00	n/a	n/a	n/a	n/a	n/a	n/a
DN	1	4	10.00	14.28	0.00	0.50	0.00	0.00	0.00	0.50
IH	0	0	0.00	0.00	n/a	n/a	n/a	n/a	n/a	n/a
IN	2	6	20.00	21.43	1.00	1.50	0.00	0.00	1.00	1.50
GH	2	0	20.00	0.00	0.00	n/a	0.00	n/a	0.00	n/a
GN	3	8	30.00	28.57	0.67	0.25	0.00	0.00	0.67	0.50
EH	0	0	0.00	0.00	n/a	n/a	n/a	n/a	n/a	n/a
EN	2	10	20.00	35.72	0.50	0.90	0.50	0.00	1.00	0.90
Total	10	28	100	100						
H	2	0								
N	6	28								
Total	10	28								

As stated above, definite noun phrases tend to have the highest TP and AR value out of any type of pre-verbal subject noun phrase. However, the type of post-verbal subjects which seem to be have the highest TP and AR values are those which are either indefinite or existential and refer to a non-human entity (IN and EN).

The TP and AR values for existential noun phrases which refer to non-animate entities occurring in post-verbal subject position are much the same as for those occurring in pre-verbal subject position. However, the TP and AR values for definite noun phrases occurring in post-verbal subject position are much lower than those occurring in either pre-verbal subject position or post-verbal object position.

The TP and AR values for indefinite and generic noun phrases which refer to non-animate entities are higher for those which occur in post-verbal subject position than those which occur in post-verbal object position.

4.2.4 Discussion of Results

The results of the above text count study clearly indicate that definite noun phrases tend to be more topic related than indefinite noun phrases. Moreover these noun phrases tend to be more closely associated with subject position than object position. These results are consistent with the analysis of grammatical subjects being developed here. That is, grammatical subjects tend to represent the most accessible information being expressed in the clause. This is typically information which is frequently repeated throughout the discourse and, therefore, also most likely to be topic related.

The observation that grammatical subjects tend to be animate whereas grammatical objects tend to be inanimate is no surprise in light of the analyses discussed in chapter 2. However, animate entities do not, on the whole, have higher TP or AR values than non-animate entities. Thus it may be that animacy is a property of grammatical subject position more than it is a property of topic-related noun phrases. This would seem to confirm the analysis of grammatical subjects given by Kuno (1976). However since the theory of information flow makes no claims regarding the relationship between animacy, definiteness and grammatical role, these results do not conflict with the current analysis.

The frequency, TP, and AR values observed for generic noun phrases were similar to those observed for existential noun phrases. Neither type of non-referential noun phrase appeared to function in a manner similar to definite noun phrases. This would seem to suggest that non-referential noun phrases are not functionally equivalent to definite noun phrases at the discourse level. The implication of this observation is that individuation is an important criteria for definiteness.

The lack of sentences which involve topicalized elements would seem to indicate that this construction is extremely rare in narrative or dialogue structures and that it is not often used in these situations to introduce or establish topics. This is consistent with the expectations generated by Chafe's theory concerning the flow of information. However, this can only be considered indirect evidence at best.

Although existential *there* sentences occur in both data samples, the frequency with which they occur is minimal when compared to the overall number of sentences that were examined. That the values associated with post-verbal NPs of existential *there* sentences differ from those associated with similar noun phrase types occurring in either pre-verbal subject position or post-verbal object position would seem to indicate that post-verbal noun phrases are not functionally or pragmatically equivalent to either grammatical subject or objects. Although the TP and AR values for noun phrases occurring in post-verbal position are higher than those for the same noun phrase types occurring in either subject or object position, they do not approach the range of values associated with definite noun phrases which clearly seem to form the central topics. This may suggest that the post-verbal noun phrase of existential *there* sentences express information which although important to the discourse are not intended to form a central organizing topic.

The results presented above indicate that noun phrase types which tend to have higher TP and AR values do not necessarily occur more frequently within a text than those with lower TP and AR values. Specifically, generic noun phrases which refer to non-animate referents (GN) were found to be more topical than definite noun phrases which predicated non-animate referents (DN) even though they occurred less frequently. Thus it is not immediately clear if it is frequency of occurrence or if it is topic persistence which provides an accurate measure of speakers' preferences. Since the analysis of existential *there* sentences and preposed objects presented above makes specific claims regarding speakers' preferences, the implication here is that there is a need to use methodologies more directly aimed at assessing speakers' preferences than the current text count study.

4.3 Experiment 1

The purpose of this experiment is to determine if speakers prefer discourse topics to be animate and/or definite rather than non-animate and indefinite. The studies presented in chapter 2 argue that discourse topics tend to be animate rather than inanimate. However, as indicated by the results obtained by Brown (1983), noun phrases tended to be animate regardless of their grammatical role. Also, the text count studies presented above seem to indicate that although animacy tends to be associated with grammatical subjects, animate noun phrases are not necessarily more topic-related than non-animate noun phrases.

The studies presented in chapter 2 also argue that topic related noun phrases tend to be definite rather than indefinite or non-referential. By definite, it is meant that the noun phrase represents an individuatable entity. However, it may seem that speakers prefer discourse topics to be definite, and hence individuated, because they are often repeated throughout the discourse. Thus definiteness may be a property of topic-related noun phrases and may not reflect speakers' preferences regarding the semantic properties of discourse topics. The implication then is that speakers may not necessarily prefer discourse topics which represent individuated items as much as those which represent existential concepts.

4.3.1 Participants

The participants in this study were 20 undergraduate students from the University of Alberta and 20 undergraduate students from the University of Ottawa. All participants were currently enrolled in either a first or second year linguistics course and had not completed courses in either discourse analysis or psycholinguistics. The participants were also native speakers of English and were, with a few exceptions, between the ages of 19 and 28.

4.3.2 Materials and Procedures

The two semantic properties explored in this experiment are animacy and referentiality. The independent variable animacy has two levels: human and non-animate. These two categories represent the two most distinct points of the animacy hierarchy as proposed by Comrie (1981) and Givón (1984). If speakers do have a preference regarding the animacy of discourse topics, it should manifest itself more clearly between these two levels of animacy than between two similar levels which are less distinct. The independent variable referentiality has four levels: definite, indefinite, generic, and existential. All levels of animacy were crossed with all levels of referentiality to produce eight different types of stimulus noun phrases. A list of the different types of grammatical subjects, along with an example of each type, is given in table 5.

Table 5. Samples of stimuli used in Experiment 1

Semantic Properties of Grammatical Subject	Sample Sentences
1. Definite, Human	*Archie* rode the roller coaster.
2. Definite, Non-human	*The floor* is slippery.
3. Indefinite, Human	*A repairman* fixed the phone.
4. Indefinite, Non-human	*A doorbell* short-circuited.
5. Generic, Human	*Neighbours* could smell the pie.
6. Generic, Non-human	*Books* were waiting to be sorted.
7. Existential, Human	*Kids* like to play games.
8. Existential, Non-human	*Trams* can go very fast.

Participants were presented with booklets containing a series of pictures. These pictures were reproductions taken from an Archie[1] comic book, a Heathcliff[2] comic book, and a Family Circus[3] comic book. Underneath each picture was a pair of sentences. Participants were asked to first look at the picture and then indicate which of the two sentences given below it best described what the picture was about. Participants were asked to indicate their choice by circling the letter, 'a' or 'b', which was immediately to the left of the sentence corresponding to their choice.

The primary difference between the sentences of each stimulus pair was their grammatical subjects. The first sentence in each set of stimulus sentences contained a different type of grammatical subject than the second sentence. Each of the subjects belonged to one of the classes of noun phrases given in table 5. Sentences containing generic subjects that referred to human referents occurred with sentences containing either a definite, indefinite, or existential grammatical subject that referred to either a human or a non-animate entity or a generic grammatical subject that referred to a non-animate entity. Similarly, sentences containing grammatical subjects which referred to existential human referents occurred with sentences containing either a definite, indefinite, or generic grammatical subject that referred to either a human or a non-animate entity or an existential grammatical subject that referred to a non-animate entity. Additionally, sentences with indefinite grammatical subjects which referred to a human referent were matched with a sentence containing an indefinite grammatical subject which referred to a non-animate referent. This pairing of factors resulted in the 23 types of stimuli sets given below in table 6.

Every attempt was made to minimize any differences between the sentences in each set. In each stimulus pair, the sentences were equivalent in transitivity and the objects of each transitive sentence pair were either semantically equivalent or were equally represented within the context. The grammatical subject of each sentence, as well as the event each sentence described, were also equally represented in the context. That is both the referents and the events predicated in each sentence of the stimulus set were approximately the same size and were equivalent with respect to their position within the context, i.e., foreground/background. Each booklet contained 23 pairs of sentences.

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[1] Archie's Double Digest, No. 101 - ©1998 Archie Comic Publications, Inc.
Archie's Double Digest, No. 94 - ©1997 Archie Comic Publications, Inc.

[2] Heathcliff Dines Out - ©1985 McNaught Syndicate, Inc.
Heathcliff on Vacation - ©1996 McNaught Syndicate, Inc.

[3] Wanna Be Smiled At? - ©1970 CBS Publications.

Table 6. List of comparisons made in Experiment 1

Stimulus Pair	Semantic Properties of Grammatical Subject
1	a. Existential, Human b. Generic, Human
2	a. Definite, Human b. Generic, Human
3	a. Indefinite, Non-human b. Existential, Non-human
4	a. Indefinite, Non-human b. Generic, Human
5	a. Indefinite, Human b. Generic, Non-human
6	a. Definite, Non-human b. Generic, Human
7	a. Definite, Non-human b. Existential, Non-human
8	a. Indefinite, Human b. Existential, Non-human
9	a. Indefinite, Human b. Generic, Human
10	a. Indefinite, Non-human b. Existential, Human
11	a. Existential, Human b. Existential, Non-human
12	a. Indefinite, Non-human b. Generic, Non-human
13	a. Indefinite, Non-human b. Generic, Non-human
14	a. Generic, Human b. Existential, Human
15	a. Definite, Human b. Generic, Non-human
16	a. Definite, Human b. Existential, Human
17	a. Definite, Non-human b. Existential, Human
18	a. Existential, Human b. Generic, Non-human
19	a. Generic, Human b. Generic, Non-human
20	a. Indefinite, Human b. Existential, Human
21	a. Indefinite, Human b. Indefinite, Non-human
22	a. Definite, Human b. Existential, Non-human
23	a. Definite, Non-human b. Generic, Non-human

Three versions of this task were prepared. Each version contained different contexts and different stimulus sentences. The order in which stimulus pairs were presented were the same for all booklets. However, the ordering of the stimulus sentences within each stimulus pair in version 2 were different from that of the first and third versions. Twenty participants were asked to complete two booklets, versions 2 and 3. A second group of twenty participants were only given version 1 of this task. A sample stimulus item is given in appendix B.

4.3.3 Scoring and Data Analysis Techniques

For each stimulus pair, the sentence preferred by a speaker was assigned a score of 1. The sentence which was not preferred by the speaker was given a score of 0. Within each booklet, the raw scores for each stimulus type were grouped together. Thus each booklet generated 8 groups of scores, one for each grammatical subject type. These scores were then analyzed using Chi-square Tests for Independence and Analysis of Variance (ANOVA). For the Chi-square analysis, the raw scores were summed according to version and subject type. Thus producing 8 values for each of the three versions. These values were then analyzed using a two-way Chi-square Test for Independence in order to determine if there was a tendency for different levels of animacy to occur with specific levels of referentiality. In order to minimize the discontinuity of the theoretical frequency curve, Yates correction for discontinuity was used when a cell mean was less than 5 (Ferguson & Takane 1989). The level of significance for these tests was set at $p \leq 0.05$.

For the ANOVAs, the raw scores were summed for each speaker. Thus each booklet produced eight single values, one for each grammatical subject type. These values were then transformed to a proportion of the total possible score for each factor. In order to ensure homogeneous variance, these proportions were then arc-sine transformed to provide a value of between 0 and 3.14 (Ferguson & Takane 1989). The resulting values from all three versions were then analysed using a Three-way ANOVA with Nested Subjects model. Next, the data from versions 2 and 3 were analyzed using a Three-way ANOVA with Repeated Measures model. The data from version 1, which represented a separate group of participants, was analyzed using a Three-way ANOVA model. As with the Chi-square analysis, the level of significance for these tests was set at $p \leq 0.05$. The ANOVAs were performed on a Power Macintosh computer using the DataDesk statistical software package. Tukey's Honest Significant Difference test was used to determine if differences between specific cell means were significant.

4.3.4 Results

Speakers' overall preferences for each sentence type are presented in figure 8. The values shown in figure 8 represent the overall average of positive responses associated with each grammatical subject type. As shown, speakers preferred those sentences with definite and indefinite grammatical subjects over those with generic and existential sentences. Overall, though, speakers seemed to prefer those sentences with definite grammatical subjects most. Speakers also tended to prefer those sentences with grammatical subjects which predicated human entities more than those which referred to non-human entities. However, speakers tended to prefer sentences about indefinite human referents more than those which were about definite, or know, non-animate referents. Sentences containing a generic grammatical subject which referred to a non-human entity were the least often chosen type of stimulus item.

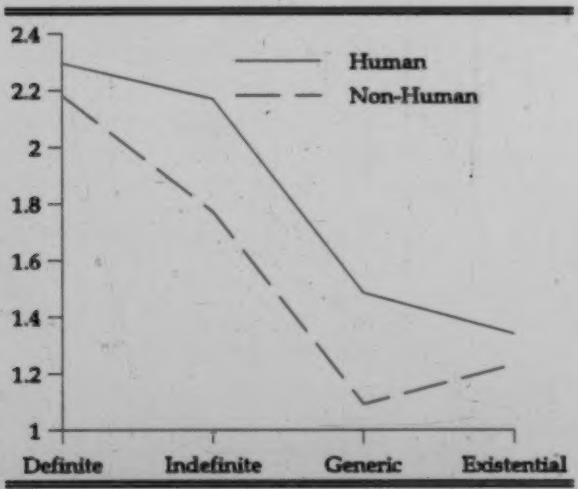

Figure 8. Average arc-sine proportion of positive responses for each level of animacy

4.3.4.1 χ^2 Test of Independence

The results obtained for the chi-square analyses of the data are given in tables A11 - A25, appendix A. The results were, for the most part, similar for all three versions. Overall, it was found that reference was not related to animacy. That is, speakers did not tend to select sentences containing grammatical subjects that were definite, indefinite, generic or existential when they were animate more than when they were inanimate. There are, however, two exceptions to this trend. One exception to this trend can be seen in tables A12 and A13. The Chi-square analyses presented in these tables indicate that speakers tended to prefer sentences with existential grammatical subjects that referred to human referents more often than existential ones which referred to non-animate referents. However this effect was limited to when these sentence types were paired with sentences containing definite grammatical subjects. Also, this preference was not significant for speakers presented with version 1 of this task. The results presented in table A21, appendix A, indicate that speakers who were presented with versions 2 and 3 of this task tended to select sentences with generic subjects which referred to a human entity significantly more often than those with generic subjects which referred to non-animate entities. However this effect only occurred when these sentences were paired with sentences containing grammatical subjects. Moreover, this preference was significant only for the data obtained from version 2 of this task.

4.3.4.2 Analysis of Variance

The average arc-sined proportions for each grammatical subject type shown in figure 8 indicate an overall preference for sentences containing animate grammatical subjects. However, the results of the ANOVAs given in table A26 - A28, appendix A, indicate that this preference is not significant for both groups of participants. The preference for sentences containing animate subjects over those containing inanimate subjects was only significant for those speakers presented with versions 2 and 3 of this task.

All three ANOVAs indicate a significant main effect between levels of referentiality. That is, speakers tended to select sentences with grammatical subjects representing one level of referentiality over one or more of the others. The overall average associated with each type of grammatical subject is given in figure 9. It can be seen here, that speakers preferred sentences with definite grammatical subjects most. The second most preferred type of stimulus item was that containing an indefinite grammatical subject. The average number of responses for those sentences with generic and existential grammatical subjects, the least preferred stimulus types, were almost equal.

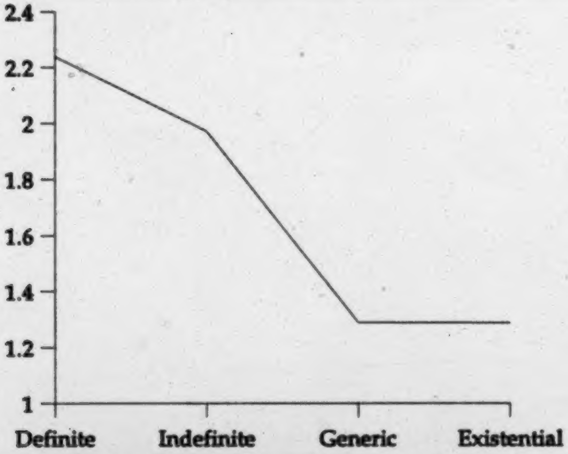

Figure 9. Average arcsine proportion of positive responses for each level of reference

According to the results of the Tukey H.S.D. test presented in table A29, appendix A, the only significant difference here was between speakers' preference for sentences containing definite grammatical subjects over those containing non-referential grammatical subjects. However when the results obtained from those speakers presented with versions 2 and 3 of this task were analyzed, a Tukey H.S.D. test indicated that speakers also preferred sentences containing indefinite grammatical subjects significantly more than those containing non-referential grammatical subjects. The results of this Tukey test is given in table A30, appendix A.

4.3.5 Discussion of Results

The stimuli presented here were organized so that the grammatical subject clearly represented the referent which the proposition expressed in the sentence referred to. Since this was, for the most part, the only difference between each sentence pair it can be assumed that speakers' preferences for different sentences were in some way connected to this difference. More importantly, since speakers were asked to express what they felt was the topic of the picture, it can be assumed that the preferences expressed by speakers performing this task reflect their preference for choosing a discourse topics. This inference is further strengthened by the results of the text count studies presented above which indicate that speakers tend to associate discourse topics with grammatical subjects.

The analysis developed in this study does not make any specific claims regarding speakers' preferences for referential or non-referential grammatical subjects or discourse topics. However, the results obtained from this task clearly indicate that when asked to verbalize a visual context, speakers prefer to organize their discourse with respect to individuatable, or referential entities rather than non-individuated, or non-referential, entities. This would certainly seem to indicate that non-referential noun phrases are qualitatively different from referential ones. This would seem to indicate that a semantic characterization of definiteness which emphasize the criterion of familiarity would be more appropriate than those which emphasize the criterion of inclusiveness.

Also of interest was the fact that speakers most often preferred to select those sentences with grammatical subjects which referred to entities that were familiar to them. This preference is also consistent with the arguments presented in the previous chapter where it is argued that the information which is most accessible tends to be encoded as grammatical subjects. Moreover it was argued that referents which are familiar tend to be more accessible than those which are unfamiliar or less familiar.

Although there was an overall preference for speakers to choose sentences with grammatical subjects which referred to human entities more often than those with non-animate grammatical subjects, this preference was strongest when the grammatical subjects were non-referential. This would seem to indicate that when speakers select an event participant as a discourse topic the animacy of a referent is less of a concern to them than its referentiality. Thus speakers' preferences regarding the referentiality and animacy of discourse topics can be expressed as the relational hierarchy given in (55).

55. DH, DN, IN, IH > GH, EH, < EN, GN

Here, '>' is used to indicate a significant or major preference of one or more types of discourse topics and ',' is used to indicate a less significant or statistically non-significant preference.

Although this study did not directly examine preposed objects or existential *there* sentences, the results obtained by this task do have implications regarding these constructions. Specifically, it was stated above that topicalized objets and post-verbal NPs of existential *there* sentences tend to express less topic-related information than grammatical subjects. If this is true, then it should also be the case that the noun phrases which occur in these positions should tend to have semantic properties associated with the lower nodes of the hierarchy given in 1 than with the those associated with the higher nodes of the hierarchy.

4.4 Experiment 2

The primary goal of this experiment was to explore speakers' preferences regarding the semantic properties of grammatical subjects which were not necessarily topic-related. The Functional Grammar analyses presented in chapter 2 indicate that grammatical subjects may represent focus information which is not directly topic related. Moreover, Kuno's characterization of grammatical subjects indicates that they will be definite and referential regardless of their functional status (Kuno 1987). Thus it is possible that speakers have specific preferences regarding the referentiality and animacy of non-topic-related grammatical subjects

A secondary goal of this study was to obtain data regarding speakers' preferences for the semantic properties of non-topic-related grammatical subjects which could be compared to similar data on speakers' preferences for the semantic properties of preposed objects and post-verbal NPs of existential *there* sentences. The purpose of this comparison would be to explore the similarity of non-topic related noun phrases occurring in different grammatical roles. If any differences were found between the data sets it could be inferred that the differences are related to the noun phrases grammatical role rather than its relationship to the discourse topic. Thus it would be possible to determine if speakers have specific preferences regarding the animacy and referentiality for noun phrases occurring in specific grammatical roles.

4.4.1 Participants

The participants in this study were 20 undergraduate students from the University of Alberta and 40 undergraduate students from the University of Ottawa. All participants were currently enrolled in either a first or second year linguistics course and had not completed courses in either discourse analysis or psycholinguistics. The participants were also native speakers of English and, with a few exceptions, between the ages of 19 and 28 years of age.

4.4.2 Materials and Procedures

As with the previous task, the two semantic properties studied in this experiment are animacy and referentiality. Again, the variable animacy had two levels: human and non-animate and the variable referentiality had four: definite, indefinite, generic, and existential. All levels of animacy were crossed with all levels of referentiality to produce the same eight different types of stimulus noun phrases as those given above in table 5.

Participants were presented with booklets containing a series of pictures. These pictures were much the same as those used in Experiment 1. Below each picture was a set of two noun phrases. Each of these noun phrases was presented in isolation and in a sample sentence in which the stimulus noun phrases was underlined. These sentences occurred immediately to the right of each stimulus noun phrase. These sentences were generally unrelated to the context, contained similar lexical items and were equal in terms of their transitivity.

Participants were asked to use the two noun phrases in a simple transitive sentence which was not related to the picture above them. They were further instructed to write the sentence in the space provided below each stimulus set. Participants were also told that if they were not able to think of a suitable verb immediately, then they were to arrange the noun phrases and use a 'V' in place of the verb. Prior to beginning the task, subjects were instructed to work as quickly and as accurately as they could.

For each stimulus set, the noun phrases differed with respect to their animacy and/or referentiality. Generic noun phrases which referred to human entities were paired with noun phrases that were either definite, indefinite, or existential and referred to either a human or a non-animate entity or with a generic noun phrase that referred to a non-animate entity. Similarly, existential noun phrases which referred to human entities were paired with noun phrases that were definite, indefinite, or generic and which referred to either a human or a non-animate entity or with an existential noun phrase that referred to a non-animate entity. As well, indefinite noun phrases which referred to a human referent were matched with an indefinite noun phrase which referred to a non-animate referent. This pairing of factors resulted in the same 23 types of stimuli sets as those given for the grammatical subjects above in table 6.

Three versions of this task were prepared. Each version contained different contexts and different stimulus sets. The order in which the stimulus pairs were presented was the same for all booklets. However, the ordering of the noun phrases within each stimulus pair in version 1 were different from that used in versions 2 and 3. A total of 60 booklets were prepared and distributed. Each participant was given only one version of this task. A sample stimulus item is given in appendix B.

4.4.3 Scoring and Data Analysis Techniques

For each stimulus pair, the noun phrase which was used by a speaker as a grammatical subject was assigned a value of 1. The noun phrase not used as a grammatical subject was assigned a value of 0. If a grammatical subject was a noun phrase other than one of those provided in the stimulus set, no score was assigned and the booklet was discounted from further analysis. Within each booklet, the raw scores for each stimulus type were grouped together. Thus each booklet generated 8 groups of scores, one for each noun phrase type. Each group of scores were then summed to provide 8 single values for each booklet. Each of these values were then transformed to a proportion of the total possible score which could have achieved for that noun phrase type. In order to maintain the assumption of homogeneity of variance these proportions were then arc-sine transformed to provide a value of between 0 and 3.14 (Ferguson and Takane 1989). The resulting values from all three versions were then analysed using a Three-way ANOVA with Nested Subjects model. As well, the data from versions 1 and 2 were analyzed using a Three-way ANOVA with Nested Subjects model. Finally, the data from version 1 was analyzed using a Three-way ANOVA model. The level of significance for these tests was set at $p \leq 0.05$. The analyses were performed using the DataDesk Statistical software package.

4.4.4 Results

The average arc-sine values associated with each noun phrase type is given here in figure 10. These values indicate the relative preference by speakers for using each noun phrase type as a grammatical subject. The type of noun phrases most often used as a grammatical subject were the definite and indefinite noun phrases which referred to a non-animate entity. Existential noun phrases that referred to human entities were least often used by speakers as a grammatical subject. Overall, speakers preferred to use referential noun phrases most when they referred to non-animate entities and non-referential noun phrases most when they referred to human entities.

Although the results presented in figure 10 indicate the presence of an interaction effect, the results of the ANOVA presented in table A32, appendix A, indicate that this interaction effect was not significant. These same results indicate that speakers' tendency to use referential noun phrases as grammatical subjects rather than non-referential noun phrases was not significant either. The only significant results obtained by this ANOVA were related to differences between the data obtained for each version of this task. These differences were significant at $p \leq 0.001$.

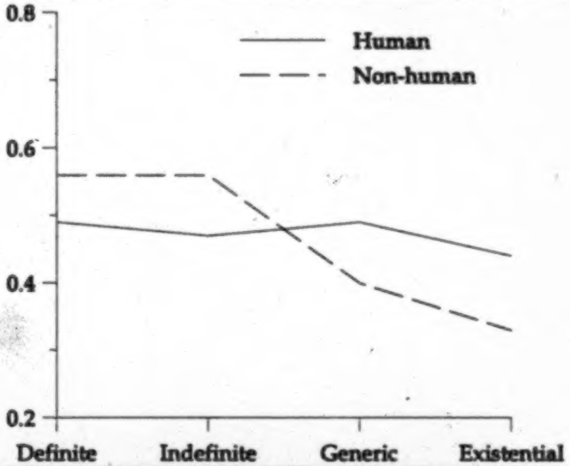

Figure 10. Average arc-sine proportion of positive responses based on reference and animacy

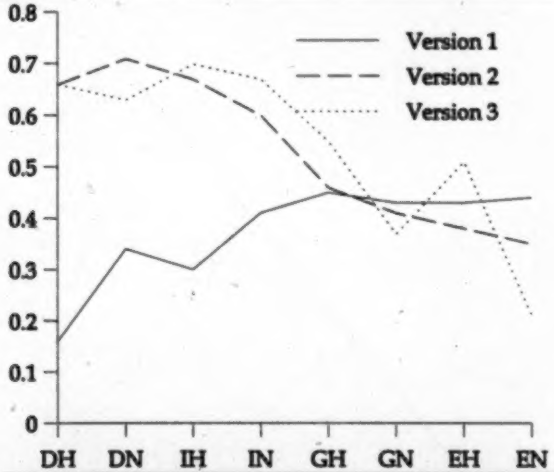

Figure 11. Average arc-sine proportion of positive responses in each version

The average arc-sine proportion of positive responses for each noun phrase type in each version are given below in figure 11. These results indicate that those speakers given versions 2 and 3 of this task tended to select definite noun phrases as grammatical subjects most often. However, speakers given versions 1 of this task tended to use definite noun phrases as grammatical subjects less often than any other type. Speakers presented with version 1 of this task tended to use non-referential noun phrases as a grammatical subject to the same degree as those speakers given version 2. Speakers given version 3 of this task preferred non-referential noun phrases as grammatical subjects which referred to non-animate referents more than non-referential noun phrases which referred to human referents.

The results from the analysis of variance of the data from versions 1 and 2, given in table A33, appendix A, indicate that the differences between the two versions was significant. Only those interaction effects which take into account differences between versions were significant. The results from the analysis of variance of the data from version 3, given in table A34, appendix A, that these speakers' tendency to use referential noun phrases as grammatical subjects more than non-referential noun phrases was significant. Moreover, the interaction effect between animacy and non-referential noun phrases was also significant.

It should be pointed out that of the 60 booklets which were distributed 18 could not be used in the analysis. This is because 6 of the participants given version 2 of the booklet and 5 of those given version 1 generated sentences containing grammatical subjects other than those provided in the stimulus pairs. Similarly 4 of the speakers given version 3 of the booklet generated sentences containing grammatical subjects other than those provided in the stimulus pairs. However, in order to maintain an equal number of data points for all conditions, only a maximum of 14 booklets of each version could be used.

Speakers experienced the most difficulty with those stimulus sets in which an existential noun phrase was paired with either a generic noun phrase or an indefinite noun phrase. The most common non-scorable response for these stimulus pairs was to use a definite noun phrase in either subject or object position. These responses accounted for approximately 78% of the non-scorable responses. As well, there was a tendency for speakers to generate intransitive sentences. In some cases speakers used a stimulus noun phrase as the grammatical subject whereas in other cases, speakers selected noun phrases from the sample sentences. In either case, the booklet was excluded from the analysis.

4.4.5 Discussion of Results

The implications of this study are mostly limited to methodological considerations. First, there may have been a strong order effect which influenced speakers performance. As indicated by the results given in table A33, speakers presented with version 1 did not favour definite and indefinite noun phrases as grammatical subjects to the same extent as those speakers presented with version 2. In version 1, these target noun phrases tended to occur first in the stimuli sets whereas in version 2, they tended to occur in the second position. Thus it would seem that speakers' preference for choosing a grammatical subject was based on order of occurrence rather than on any inherent semantic properties.

Second, many speakers had difficulty performing the tasks. Although there was no clear indication of a significant preference for using definite noun phrases as grammatical subjects, several speakers tended to substitute definite noun phrases for either generic, existential, or indefinite noun phrases. This would seem to indicate that speakers prefer sentences to contain at least one definite noun phrase. This would be consistent with the theory of information flow given above, specifically the *one-new-idea* constraint.

The results obtained from the analysis of the data generated by version 3 of this task indicate that speakers prefer to use non-referential noun phrases most when they referred to non-animate entities. However, given the difficulty speakers had with this task and the strong indications of an order effect, this tendency may not be a reliable or valid observation.

4.5 Experiment 3

The goal of this experiment was to determine if speakers prefer preposed objects to have the same semantic properties as topic-related noun phrases. Several analyses presented in the previous chapter argue that preposed objects represent entities which are topic-related. Specifically, it was argued that a necessary condition for Y-movement is that the object is more topic-like than the grammatical subject (Givón 1983 1994; Sun & Givón 1985). However, the analysis of preposed objects developed here indicates that it is more likely that preposed objects represent information which is less topic-related than that expressed by the grammatical subject. The argument is that the information which is most accessible tends to occur in subject position. Objects, on the other hand, tend to represent information which is considered less accessible than that typically expressed by a grammatical subject. As already mentioned, the most accessible information is that which is related to the current discourse topic.

The results presented so far in this chapter indicate that topic-related noun phrases tend to be referential. Moreover, referential noun phrases which refer to a human entity tend to have higher TP values than those which refer to non-animate entities. If preposed objects do, in fact, represent contrastive topics or topics which need to re-established in a discourse then speakers should find sentences containing referential preposed objects which refer to human entities more felicitous than those containing non-referential preposed objects or referential preposed objects which refer to a non-animate entity. If, however, preposed objects represent important information which a speaker wishes to emphasize, speakers should find those sentences which contain preposed objects which are typical of grammatical objects more felicitous than those which do not.

4.5.1 Participants

The participants in this study were 40 undergraduate students from the University of Alberta and 20 undergraduate students from the University of Ottawa. All participants were currently enrolled in either a first or second year linguistics course and had not completed courses in either discourse analysis or psycholinguistics. The participants were also native speakers of English and, with a few exceptions, between the ages of 19 and 28 years of age.

4.5.2 Materials and Procedures

As already indicated, the object of study in this experiment were preposed objects occurring in transitive sentences. The grammatical objects were either definite, indefinite, generic, or existential which referred to either a human or a non-animate referent. The grammatical subjects of each stimulus sentence were either definite, indefinite, generic, or existential and referred to either a human or a non-animate referent. Thus there were eight types of preposed objects and eight types of grammatical subjects. However, each preposed objects did not occur with each type of grammatical subject. Preposed objects did not occur with grammatical subjects which were equivalent to them with respect to referentiality. Thus, there were 48 stimulus sentences. A description of each type of stimulus sentence is given below in table 7.

Table 7. Description of stimuli used in Experiment 3

Set 1			
	Subject:	Definite - Human (DH)	
	Objects:	Indefinite - Human (IH)	Generic - Non-animate (GN)
		Indefinite - Non-animate (IN)	Existential - Human (EH)
		Generic - Human (GN)	Existential - Non-animate (EN)
Set 2			
	Subject:	Definite - Human (DN)	
	Objects:	Indefinite - Human (IH)	Generic - Non-animate (GN)
		Indefinite - Non-animate (IN)	Existential - Human (EH)
		Generic - Human (GH)	Existential - Non-animate (EN)
Set 3			
	Subject:	Indefinite - Human (IH)	
	Objects:	Definite - Human (DH)	Generic - Non-animate (GN)
		Definite - Non-animate (DN)	Existential - Human (EH)
		Generic - Human (GH)	Existential - Non-animate (EN)
Set 4			
	Subject:	Indefinite - Non-animate (IN)	
	Objects:	Definite - Human (DH)	Generic - Non-animate (GN)
		Definite - Non-animate (DN)	Existential - Human (EH)
		Generic - Human (GH)	Existential - Non-animate (EN)
Set 5			
	Subject:	Generic - Human (GH)	
	Objects:	Definite - Human (DH)	Indefinite - Non-animate (IN)
		Definite - Non-animate (DN)	Existential - Human (EH)
		Indefinite - Human (IH)	Existential - Non-animate (EN)
Set 6			
	Subject:	Generic - Non-animate (GN)	
	Objects:	Definite - Human (DH)	Indefinite - Non-animate (IN)
		Definite - Non-animate (DN)	Existential - Human (EH)
		Indefinite - Human (IH)	Existential - Non-animate (EN)
Set 7			
	Subject:	Existential - Human (EH)	
	Objects:	Definite - Human (DH)	Indefinite - Non-animate (IN)
		Definite - Non-animate (DN)	Generic - Human (GH)
		Indefinite - Human (IH)	Generic - Non-animate (GN)
Set 8			
	Subject:	Existential - Human (EN)	
	Objects:	Definite - Human (DH)	Indefinite - Non-animate (IN)
		Definite - Non-animate (DN)	Generic - Human (GH)
		Indefinite - Human (IH)	Generic - Non-animate (GN)

Speakers were presented with booklets containing eight pages. Each page contained a picture followed by a set of 6 sentences which were based on the preceding visual context[4]. Each set of sentences corresponded to one of the stimulus groups given in table 7. For each set of sentences, the grammatical subjects were either the same or were lexically similar items which were equal in referentiality and animacy. As well, for each set of sentences, the sentences were approximately the same length and referred to items which were equally represented in the visual context. However, each set of sentences made use of a different type of grammatical subject. Each grammatical subject type was used thereby creating the eight sets of sentences. The six preposed objects in each set of sentences represented a different pairing of one level of animacy with one level of referentiality. All levels of referentiality, except that expressed by the grammatical subject, were paired with both levels of animacy.

Subjects were instructed to look at the picture first and then read the sentences which occurred below it. They were then asked to indicate which of the six sentences they preferred most by placing a 1 in the space immediately to the left of it. They were then asked to indicate which sentence they preferred least by placing a 6 in the space immediately to the left of it. They were then asked to rank the remaining sentences accordingly. Each rank was to be used only once.

Three different versions of the task were prepared. Each version of the task made use of different stimulus items. A sample stimulu item is given in appendix B. The order in which each set of stimulus sentences occurred was the same for each version. For version 1, however, the order in which each sentence occurred within their respective stimulus set was different from that in versions 2 and 3.

4.5.3 Scoring and Data Analysis Techniques

Each stimulus set was scored individually. For each stimulus set, the rank value assigned to each sentence by each speaker were grouped together. This resulted in eight groups of 60 scores. Each group of scores were then analyzed separately using a One-way ANOVA. Since the data being analyzed involved ranked data, the six conditions in each group can not be considered independent. Thus it was not possible to calculate an F-score for these data. Instead, the Mean Square and Sum of Squares values were used to calculate a Chi-square value (Winer 1971). As in the previous studies, the level of significance for these results was set at $p \leq 0.01$.

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[4] The pictures used in this task were taken from the same source as those used in experiments 1 and 2.

4.5.4 Results

The results of the One-way ANOVAs are given in tables A35-A42, appendix A. The results presented in these tables indicate a significant main effect for all but one stimulus set. The results presented in table A35 indicate that the differences between the average rank values for sentences in stimulus set 1 were not significant. The average rank value for each of the 48 types of sentences are given below in table 8. Since each stimulus set was analyzed independently, it is not possible to determine if response patterns differed significantly between sets.

Table 8. Average Rank Value for Each Sentence Type

	Preposed objects							
	DH	DN	IH	IN	GH	GN	EH	EN
Set 1 Subject: DH	n/a	n/a	4.0	3.33	3.15	3.27	3.3	3.97
Set 2 Subject: DN	n/a	n/a	3.52	4.63	2.18	3.53	2.87	4.27
Set 3 Subject: IH	4.02	3.85	n/a	n/a	3.48	2.4	3.02	4.23
Set 4 Subject: IN	3.72	4.93	n/a	n/a	2.83	3.8	2.37	3.35
Set 5 Subject: GH	3.12	3.03	4.13	2.98	n/a	n/a	4.3	3.43
Set 6 Subject: GN	2.8	3.18	3.93	3.43	n/a	n/a	3.93	3.72
Set 7 Subject: EH	3.48	2.7	3.48	2.72	4.37	4.25	n/a	n/a
Set 8 Subject: EN	3.42	3.5	2.67	3.25	3.68	4.48	n/a	n/a

From the results presented in table 8 it can be seen that when presented with sentences from stimuli sets 1 and 2, speakers tended to rank those sentences containing non-referential preposed objects higher than those containing indefinite preposed objects. However, this tendency was only significant for sentences containing grammatical subjects which were definite and referred to a non-animate entity. Specifically, when presented with these types of sentences, speakers tended to rank those sentences containing preposed objects which predicated non-referential reference of human entities highest.

Sentences containing preposed objects which predicate non-referential reference also tended to have significantly higher average rank values than those containing a referential preposed object when the grammatical subject was an indefinite noun phrase. As shown in table 8, when presented with sentences from stimulus set 3, speakers tended to prefer those sentences containing preposed objects that predicated either generic reference to a non-animate entity (GN) or existential reference to a human entity (EH). Similarly, when presented with sentences from stimulus set 4, in which the grammatical subjects were indefinite and referred to a non-animate entity, speakers tended to rank those sentences containing preposed objects that predicated either existential or generic reference to human entities (EH and GH).

When presented with sentences from stimuli sets 5-8, which contained non-referential grammatical subjects, the overall tendency for speakers was to rank sentences with a referential preposed objects higher than those with a non-referential preposed objects. Specifically, when presented with sentences from stimulus set 5, speakers tended to rank those sentences containing either a definite or indefinite preposed object which referred to a non-animate entity (DH and IH) significantly higher than those containing a preposed object predicating existential reference to a set of human entities (EH). Similarly, when the grammatical subject predicated generic reference to a non-animate entity, speakers most preferred those sentences in which the preposed object was a definite noun phrase which referred to a human referent (DH). Similarly, when presented with sentences containing grammatical subjects which predicated existential reference, such as those in stimuli sets 7 and 8, speakers tended to rank those sentences containing indefinite preposed objects which referred to a human referent (IH) significantly higher than containing preposed objects which predicated generic reference (GH and GN).

Speakers also tended to prefer sentences which contained preposed objects that referred to referents that had a different level of animacy than that referred to be the grammatical subject. The sentences in stimuli sets 2, 4, 6, and 8 contained grammatical subjects which referred to non-animate entities. The results given in table 8 indicate that for these stimuli sets, the sentence type which has the highest average rank value is one in which the preposed object refers to a human referent. Similarly, the sentences in stimuli sets 3, 5, and 7 contain sentences with grammatical subjects that refer to human entities. The sentence type with the highest rank value for these stimuli sets contain a preposed object which refers to a non-animate referent.

4.5.5 Discussion of Results

Since the difference between the sentences in each stimulus set was, for the most part, only the type of preposed object each sentence contained, it can be assumed that any difference in average rank values are related to this difference. Moreover, the main difference between each type of preposed object was its animacy and reference, it can be assumed that these semantic properties are what caused the differences in speakers' rankings.

As indicated earlier, several previous analyses assume that preposed objects are used to represent topic-related information. As has been shown here, topic-related noun phrases tend to be definite and animate. If preposed objects represent topic-related information, then they too should be definite and animate. However, the results obtained here indicate that speakers do not consistently prefer sentences with these types of preposed objects.

The analysis developed here argues instead that preposed objects represent information which a speakers wishes to emphasize but which is not more accessible than that which is expressed by the grammatical subject. Thus, if a grammatical subject is indefinite, it should be the case that speakers prefer sentences in which the preposed object is less accessible than those in which the preposed object represents information which is more accessible. As indicated by the data presented in this chapter, referential noun phrases tend to be more accessible than non referential noun phrases. Thus it should be the case that if a sentence contains an indefinite grammatical subject, speakers should prefer the preposed object to be non-referential than referential. The results presented above for stimulus sets 3 and 4, are consistent with this expectation.

When given sentences which contain generic grammatical subjects, which are low in accessibility, speakers tended to prefer those sentences in which the preposed objects were referential. These results are contrary to those obtained when the grammatical subjects were referential. Together, though, these results are indicative of a more general trend. It appears that speakers prefer sentences with only one non-referential noun phrase more than those which contained two non-referential noun phrases. Although unexpected, these results can be accounted for by the theory of information flow discussed in the previous chapter. Specifically, it is argued that including a highly accessible referent in a clause allows speakers to integrate the proposition of the clause more efficiently. If this is the case, then it would seem that speakers would, overall, tend to prefer sentences which contain at least one highly accessible referent.

A second unexpected result is that speakers tended to prefer sentences in which the animacy of the preposed object was contrary to that of the grammatical subject. Neither the current analysis of preposed objects or those presented in the previous chapter are able to account for this trend. The analysis of preposed object given in this chapter does not make specific claims regarding the accessibility of animate or non-animate referents. Thus it is not expected that speakers would prefer clauses with only one non-animate referent over those which contain two non-animate referents. The results obtained from this task may indicate that human referents are indeed more accessible than non-animate referents or may indicate the existence of a secondary cognitive processing strategy.

4.6 Experiment 4

The purpose of this study was to determine if speakers consider referents of preposed object and post-verbal noun phrases of existential *there* sentences to be more topic-related than post-verbal objects of transitive sentences. As mentioned earlier, in previous analyses of preposed objects and existential *there* sentences, it is argued that these constructions are used to either re-establish previous discourse topics or introduce new discourse topics. Moreover it has been established here that the referents of noun phrases which are topic-related tend to be referred to frequently in a discourse. As a result, these types of noun phrases tend to have higher Topic Persistence (TP) values. If the primary function of preposed objects and post-verbal NPs of existential *there* sentences is to introduce or establish a discourse topic, then they too should tend to have higher than average TP values.

According to the analysis of preposed objects and existential *there* sentences developed in this thesis, the primary pragmatic function of these constructions is not to introduce or re-establish discourse topics. Rather it is argued here that these constructions are used to emphasize information which the speaker feels is important to the discourse. As a result, the referents of these constructions should not necessarily have higher than average TP values.

It has also been demonstrated here that the discourse topics tend to have certain semantic properties. Specifically, discourse topics tend to be referential rather than non-referential and may also tend to be animate rather than inanimate. Thus it is possible that only those preposed objects and post-verbal NPs of existential *there* sentences which embody these properties may tend to be topic-related. Therefore, this study will also examine the effects of animacy and referentiality on speakers perception of preposed objects and post-verbal subjects of existential *there* sentences as topic marking devices in English.

4.6.1 Participants

The participants in this study were 10 undergraduate students enrolled in first or second year linguistics courses at the University of Alberta and 6 individuals who had completed a masters degree in a field other than linguistics. None of the participants had completed courses in either discourse analysis or psycholinguistics. The participants were also native speakers of English and, with a few exceptions, between the ages of 19 and 28 years of age.

4.6.2 Materials and Procedures

As mentioned three variables are examined in this study. These were animacy, referentiality, and grammatical role. The variable animacy had the same levels/values as in the previous two experiments. The variable reference had three levels: indefinite, generic, and existential. The variable grammatical role had three levels - post-verbal object, pre-verbal object, and post-verbal subject. All levels of each variable were crossed, forming the 18 different conditions given in table 9.

The stimuli used in this experiment were short written paragraphs, each containing approximately six sentences. The last sentence of each paragraph was either a simple transitive sentence, a transitive sentence containing a preposed object, or an existential *there* sentence. The pre- and post-verbal objects of the transitive sentences were either indefinite, generic, or existential and referred to either a human or a non-animate referent. Thus, there were six possible types of pre- and post-verbal objects. Similarly, post-verbal subjects of existential *there* sentences were either indefinite, generic, or existential and referred to either a human or a non-animate referent. Thus there were also six possible types of post-verbal subjects. Altogether, there were 18 different types of stimulus paragraphs. There were two tokens of each type of stimulus paragraph, resulting in 36 stimulus paragraphs. Each token of each type made use of different lexical items. A total of 16 booklets were distributed. The order in which the stimuli paragraphs occurred was different for all booklets.

Table 9. Types of stimuli used in Experiment 4

Set 1		
Grammatical Role:	Post-verbal object	
Semantic properties:	Human, Indefinite	Non-animate, Indefinite
	Human, Generic	Non-animate, Generic
	Human, Existential	Non-animate, Existential
Set 2		
Grammatical Role:	Pre-verbal object	
Semantic properties:	Human, Indefinite	Non-animate, Indefinite
	Human, Generic	Non-animate, Generic
	Human, Existential	Non-animate, Existential
Set 3		
Grammatical Role:	Post-verbal subject	
Semantic properties:	Human, Indefinite	Non-animate, Indefinite
	Human, Generic	Non-animate, Generic
	Human, Existential	Non-animate, Existential

Participants were presented with booklets containing all 36 stimulus paragraphs. A copy of each of these stimulus paragraphs is given in appendix B. Each stimulus paragraph was presented on a separate page. Participants were instructed to read the paragraph and then to write six sentences which continued the paragraph in what they considered to be a logical or expected manner. They were asked to repeat this procedure until they finished every page in the booklet. Participants were also asked to begin with the first page and to proceed sequentially through the booklet. They were also instructed to complete each page before beginning reading the next stimulus paragraph. Participants were also asked not to refer to any other page than the one they were currently working on.

4.6.3 Scoring and Data Analysis Techniques

For each booklet the TP value associated with each target noun phrase was calculated. The TP value of each target noun phrase was determined by counting the number of times the referent predicated by the target noun phrase was referred to in the text produced by the participant. The values for each replicate of the target noun phrase were then grouped together to produce 24 groups of values which contained three scores each. This procedure was used to score all responses in all booklets. The TP values for each type of target noun phrase were then grouped together. These scores were then averaged for each group thus providing an average TP value for each type of target noun phrase. The unaveraged scores from all booklets were analyzed using a Four-way ANOVA with Repeated Measures model. This analysis was done using SPSS/Win statistical software which was installed on an IBM computer.

4.6.4 Results

The results of the analysis of variance is given in tables A43 and A44, appendix A. These results indicate that there is a significant difference between speakers' responses based on each type of grammatical structure. As indicated in table A46, appendix A, in the discourse produced by the speakers, preposed objects tend to have the highest TP values. Non-preposed, or post-verbal, objects, on the other hand, tended to have the lowest. As indicated by the results of the Tukey H.S.D. test given in table A49, appendix A, this preference was significant at $p \leq 0.05$.

The results of the analysis of variance indicates that higher TP values associated with the different types of grammatical roles is dependent upon the referentiality of the noun phrase. The average Topic Persistence (TP) value for each of the noun phrase types is given in figure 12. Here it is shown that although post-verbal noun phrases tended to have higher TP values, preposed objects which were also indefinite tended to have the highest TP values. As indicated by the results of the Tukey H.S.D. test given in table A51, the average TP values for preposed objects which were indefinite noun phrases were significantly higher than for either post-verbal subjects or preposed objects which were also indefinite.

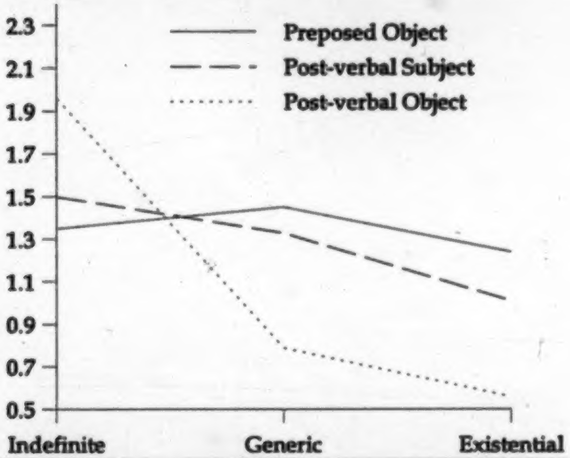

Figure 12. Average TP value for each noun phrase type

Post-verbal noun phrases which predicated generic or existential reference had the lowest overall TP values. These values were significantly lower than indefinite or generic noun phrases occurring in other grammatical positions. They were not significantly lower than those for existential noun phrases which occurred in other grammatical positions. The average TP values for indefinite preposed objects and post-verbal subjects did not differ significantly from those which predicated generic or existential reference. However, preposed objects which predicated generic reference tended to have significantly higher TP values than those which predicated existential reference.

The results of the analysis of variance also indicate that the animacy of a noun phrase affected the degree to which speakers continued to refer to it. As indicated in table A45, appendix A, noun phrases which referred to human referents tended to be used more by speakers than those which referred to non-animate referents, regardless of their grammatical role in the stimulus sentence. These results also indicate that this preference was dependent upon the referentiality of the noun phrase. The average TP value for the different types of human and non-animate referents are presented in figure 13.

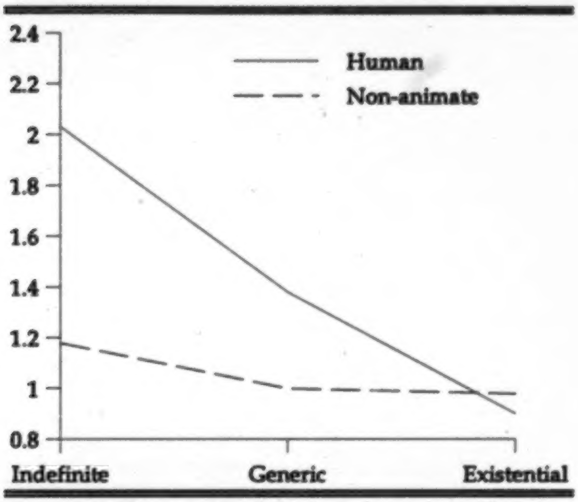

Figure 13. Average TP values for human and non-animate referents

As shown in figure 13, those noun phrases in the stimulus sentences which were indefinite and referred to a human referent tended to have higher TP values than those which referred to a non-animate referent. According to the results of the Tukey H.S.D. test presented in table A50, indefinite noun phrases which referred to a human referent tended to have significantly higher TP values than all other types of noun phrases. It also seems that speakers tended to refer to generic noun phrases which referred to a human referent significantly more than those which referred to a non-animate entity. Speakers did not tend to refer to existential noun phrases which referred to a human referent significantly more often than to those which referred to a non-animate referent.

The analysis of the data presented here indicates that not all speakers responded in a similar manner. That is, not all speakers referred to indefinite noun phrases significantly more often than to generic or existential ones. Moreover, three of the speakers preferred generic noun phrases significantly more than indefinite ones.

4.6.5 Discussion of Results

As already discussed, the analysis presented here argues that speakers do not use preposed objects and post-verbal NPs of existential *there* sentences to introduce or re-establish new topics. Instead, these structures are used to emphasize information. As a result, these types of noun phrases should have TP values which, although higher than those associated with post-verbal objects, are substantially lower than those associated with grammatical subjects.

The TP values for grammatical objects and post-verbal subjects of existential *there* sentences presented here are similar to those obtained in the text count study presented earlier. There it is concluded that noun phrases with low TP values tend not to be topic-related. Given the comparatively low TP values obtained here, it seems that speakers did not perceive the target noun phrases as representing a new topic. However, speakers did refer to preposed objects and post-verbal subjects significantly more often than to post-verbal objects. This would seem to indicate that although they do not consider them to be new topics, they did consider them important to the discourse.

It was also found here that the TP value of a noun phrase is to some extent dependent upon its semantic properties. Specifically it was found that speakers tended to refer to target noun phrases which referred to a human entity significantly more often than to one which referred to a non-animate referent. This would seem to indicate that animate entities are either more important to the discourse than non-animate referents or more salient to the speakers. The analysis developed here, makes no specific claims regarding the saliency of animate or non-animate referents.

Similar results were observed regarding speakers reactions to noun phrases which differed with respect to their level of referentiality. Specifically, it was found that speakers referred to target noun phrases which were indefinite more often than those which were non-referential. Since referential noun phrases can not be inherently more salient, it may be that they are easier to conceptualize and thus are more accessible to speakers. If this is the case then it would explain why topics tend to be referential than non-referential.

4.7 Conclusion

Several sources of data are used in this chapter to provide information which has some bearing on the issues raised in this chapter. The data were collected using a variety of techniques, including text counts, forced choice paradigms, and a production task. The initial studies explored the semantic and syntactic properties of grammatical subjects and discourse topics. The results of these studies indicate that:

- grammatical subjects tend have high TP values and be both animate and definite;

- grammatical subjects tend to be definite noun phrases more often than grammatical objects;

- animate noun phrases do not necessarily have higher TP values than non-animate noun phrases;

- post-verbal NPs of existential sentences do not tend to have the same semantic properties as grammatical objects.

The subsequent studies examined the semantic and syntactic properties of preposed objects and post-verbal NPs of existential *there* sentences. These results indicate that:

- speakers find it difficult to create sentences using only non-referential noun phrases;

- speakers prefer preposed objects to be animate and referential only when the grammatical subject of the clause is non-referential and inanimate;

- preposed objects and post-verbal NPs of existential *there* sentences tend to have higher TP values than non-displaced grammatical objects but lower TP values than grammatical subjects.

The implications of these results for the analyses presented in chapter 2 or presented in the following chapter. As well, their implications for the pragmatic functions of preposed objects, existential *there* sentences and for the theory of information processing as a whole are also discussed.

Chapter 5 General Discussion

5.0 Introduction

The purpose of this chapter is to review the results presented in the previous chapter and their implications for the analyses presented in chapters 2 and 3. Specifically, it is argued that purely syntactic or semantic approaches towards the analysis of preposed objects and post-verbal NPs of existential *there* sentences are not fully able to account for the results presented in this study. Even the cognitive-based account of these constructions which is advocated here did not account for all the data. It is also the purpose of this chapter to review this study as a whole. Thus it concludes with a discussion of the methodological and theoretical limitations of this study and the implications of the results obtained here for further research.

5.1 General Discussion

This study has had two main objectives. These were:

1) to further explore the semantic and pragmatic properties of discourse topics, grammatical subjects, preposed objects, and existential *there* sentences.

and

2) to demonstrate that preposed objects and existential *there* sentences are not necessarily topic related.

In order to achieve these objectives, a variety of data collection techniques were used. The analyses of these data indicated that:

- speakers prefer grammatical subjects to be topic-related noun phrases which are definite and refer to a human referent;

- reference may be more important to the determination of syntactic roles than either definiteness or animacy;

- speakers prefer to prepose objects which differ from grammatical subjects with respect to their animacy and referentiality;

- preposed objects and post-verbal subjects do not tend to be topic related yet reoccur in a text more often than non-preposed objects.

Of the analyses presented in this thesis, only that developed in chapter 3 is able to potentially account for these facts.

The generative analyses presented in chapter 2 focus on examining the structural properties of preposed objects and existential *there* sentences. There it was argued that different generative principles are responsible for the distribution of these constructions (Koopman and Sportische 1991; Sportische 1998; Aoun & Li 1989). Because analyses such as these assume a rigid separation between syntax and all other levels of representation they discount or ignore the impact of the semantic, pragmatic, and functional attributes of a construction. As a result, they can not account for the importance of animacy, referentiality, and topic-relatedness to the determination of grammatical subjects, preposed objects, and post-verbal NPs and of referentiality to the determination of NPs in general.

The discussion of non-structural analyses in chapter 2 was divided into two parts. The first part presented a discussion of those analyses based on the formalized tenets of Functional Grammar as set out by Dik (1989). These analyses assume that clauses are structured based on the entity's semantic relationship to a verb and make no allowance for the effects of inherent semantic properties such as reference and animacy (Haberland & Thomsen 1994; Weigand 1994). Because these analyses consider only a narrow range of semantic properties and do not consider semantic relationships between NPs, they cannot account for the fact that speakers' preferences regarding the semantic properties of preposed objects is based on the semantic properties of the grammatical subject. As well, these analysis consider topic to be nothing more than a pairwise connection between sentences. Under these analyses, then, all topic NPs are functionally equivalent. Thus these analyses can not account for why displaced subjects and objects establish pairwise connections which are more sustained in a discourse than those associated with non-displaced objects but less sustained than those established by grammatical subjects.

The remaining analyses presented in chapter 2 also provide a functional perspective on the analysis of preposed objects and existential *there* sentences. However these analyses do not necessarily focus on the impact of semantic roles on these constructions. In the first of these analyses, preposed objects and post-verbal NPs of existential *there* sentences are analyzed solely with respect to their relationship to topic (Chafe 1984; Mayhill 1992). Specifically it is argued that they represent either previously established topics or potentially new topics. As a result it is concluded that these NPs have the same semantic properties as topic-related grammatical subjects. However the results obtained here do not support these arguments. Rather it was shown that these constructions are not necessarily topic-related nor do they tend to be semantically similar to those NPs which do tend to be topic-related.

The final analyses presented in chapter 2 focus on the relationship between the function of preposed objects and existential *there* sentences and their information status (Prince 1992; Ward & Birner 1995). Because information status is determined by a referent's newness or givenness, inherent semantic properties such as animacy and reference become inconsequential. As a result these analyses can not account for the fact that speakers prefer that NPs occurring in different syntactic positions have specific values of animacy. Moreover, these analyses maintain that the function of preposed objects is to express topic-related information whereas the function of existential *there* sentences is to introduce new information. However, as this study demonstrates, neither construction tends to be topic-related nor are they necessarily used to introduce new information.

The analysis of preposed objects and existential *there* sentences which is argued for in this study is presented in chapter 3. It assumes that linguistic structures are determined by semantic, pragmatic, and cognitive factors. It makes crucial use of two principles related to the theory of information flow as developed by Chafe (1994). These are the *light subject constraint* and the *one-new-idea constraint.*

The first of these constraints expresses the relationship between cognitive accessibility and grammatical role. Accessibility is determined by both semantic factors (Kuno 1976) and pragmatic factors. The constraint predicts that accessible referents, i.e., those which are animate and referential, will tend to occur as grammatical subjects. This was confirmed by the results of the initial text count and of the first experiment.

The second constraint expresses the impact of real-time processing limitations of memory and attention on language processing. It predicts that transitive clauses will contain only one new, or non-accessible, referent. This constraint provides an explanation for the results obtained in experiments 2 and 3 where it was found that speakers preferred clauses containing only one NP which was non-referential and inanimate, and therefore non-accessible.

Moreover, the analysis presented in chapter 3 argues that preposed objects and post-verbal NPs of existential *there* sentences do not represent topic-related information. Instead it is argued that they represent information which although not topic-related is nonetheless considered to be important. As a result, it was predicated that these NPs will be more topical than non-preposed objects but substantially less topical than grammatical subjects, a claim which was confirmed by the results obtained in chapter 4.

Finally, it is important to mention that the results presented in this thesis have implications regarding the nature of definiteness and reference. Specifically, the results presented here indicate that speakers distinguish between referential and non-referential noun phrases. More importantly, speakers do not use existential noun phrases in the same manner in which they use definite ones in contexts which are sensitive to the semantic properties of a referent. This implies that the two types of noun phrases are not functionally or semantically equivalent. This suggests, at least in analyses of discourse topics, grammatical subjects and objects, the appropriate criteria of definiteness is uniqueness.

5.2 Methodological Limitations of the Current Study

This study has attempted to make use of data gathered under different circumstances in order to enhance the reliability of the results. As a result, several experimental methodologies are employed. Originally, much of the stimuli used in these experiments was taken from naturally occurring spoken conversation. However, methodological pressures resulted in substantial alterations of these stimulus items. Although an attempt was made to ensure that all stimuli included sentences which were not only grammatical, but also acceptable, it is possible that some test items may have seemed contrived. If this is the case, it may have affected subject's responses.

More importantly, this study has given some insight into the potential dangers of using data gathered under unnatural conditions. The task used in experiment 2 required speakers to use their linguistic abilities in an extremely atypical manner. The result was that many of the participants were not able to perform the task. Even worse, it appears that those who could complete the task did so by relying on cognitive strategies unrelated to language processing. The implication here is that any conclusions based on experimental data which can not be supported by observations based on naturally occurring data should be considered suspect.

5.3 Theoretical Limitations of the Current Study

Although every attempt was made to provide a comprehensive analysis of the semantic, syntactic, and pragmatic properties of preposed objects, and post-verbal subjects of existential *there* sentences this study has several important limitations. To begin with, this analysis has only examined data from English. As in many languages discourse topics tend to be expressed as grammatical subjects. However many languages, such as Mandarin and Japanese, allow for these to concepts to be marked independently. This is not the case in English. Thus it may be that speakers' preferences regarding certain semantic or pragmatic properties of grammatical subjects are masked by their preferences for discourse topics. Thus it is possible, and even likely, that the results obtained in this study are specific to this language group or even possibly to the language itself.

As well, this study did not examine the relationship of preposed objects due to Y-movement to preposed objects due to other linguistic devices such as clefts, pseudo-clefts and left-dislocation. Thus the claim that preposed objects do not represent topic information should only be considered relevant for those objects preposed due to Y-movement. It is entirely possible that these constructions perform a much wider range of pragmatic functions than Y-movement.

This study is also limited in that it examines only three semantic/ pragmatic properties of preposed objects and post-verbal subjects. These properties are referentiality, animacy, and topicality. These variables were examined since they are the most often discussed in the literature and have been shown to have an affect on the constructions examined in this thesis. However, it is possible that there are other important semantic or pragmatic properties which affect the distribution of preposed objects and post-verbal subjects. As mentioned in the previous chapters post-verbal subjects in existential *there* sentences are not considered as the agent of the existential verb. Nor do these noun phrases tend to embody many of the properties typically associated with agents such as individuation and animacy. Thus it may be that other properties associated with agency have an effect on the distribution of post-verbal subjects.

A final limitation of this study is that it did not examine the effects of prosodic cues. It has been shown that the noun phrases which refer to information which is under contrastive focus tend to be stressed more heavily than usual in spoken discourse (Chafe 1976, 1994). As indicated previously contrastive focus is often associated with topic marking. It is possible that in the absence of this cue, speakers did not tend to associate the property of contrastive focus with the preposed elements. If speakers had been provided with prosodic information it may have altered the results of this study related to the topicality measurements of preposed objects. However, this information was not given in any of the stimulus items presented to speakers. Yet they provided responses which were consistent with claims based on data taken from naturally occurring language.

5.4 Concluding Remarks

The central claim of this thesis is that purely syntactic, semantic, or pragmatic analyses can not adequately account for the relevant properties of preposed objects and post-verbal NPs of existential *there* sentences. The data presented here suggest that these noun phrases do not share the same syntactic, semantic, or pragmatic properties as discourse topics, grammatical subjects, or non-preposed objects. Out of all the disparate analyses presented here, only the analysis advanced in chapter 3 is able to account for the semantic, pragmatic and syntactic properties of these constructions. This analysis demonstrates that the properties of these constructions are related to the cognitive processing limitations of inherent in every speaker.

There is still a need to test both the reliability and validity of the results and conclusions presented in this thesis. Moreover, there are still some outstanding issues which need to be examined since they may affect the conclusions made in this thesis. Specifically, there is still a need to study the importance of contrastive stress as an indicator of cognitive focus. Also, a fuller exploration of the relationship of referentiality, animacy and semantic roles to cognitive accessibility is required before these results can be considered conclusive.

In spite of its shortcomings, this thesis demonstrates that the different modules of a grammar are not necessarily autonomous either from each other or from general principles of cognition. It has been shown that the constructions examined in this study are influenced by semantic and pragmatic factors as much as, if not more than, syntactic principles. The overall implication is that linguistic analyses must consider these possible influences and either control for them or examine their relationship to the concept under investigation.

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116 – 133 (Appendix A)

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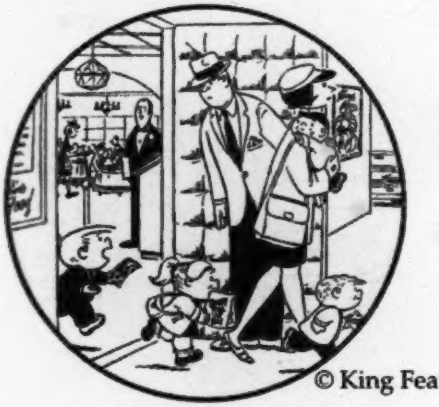
Appendix B

B1. Sample of Stimuli Used in Experiment 1

B1.1 Instructions

In this study, you will be presented with a series of pictures. Below each picture or set of pictures, are two sentences. Your task is to determine which of these sentences best represents the preceding picture(s). Indicate your choice by circling the letter, ie, a or b, next to the sentence you prefer. There are no 'trick' sentences. All of these sentences are based on the preceding picture(s) and the information contained in them is, given the context, true. you should also assume that any spelling mistakes or grammatical errors are purely accidental.

B1.2 Sample Stimulus Used in Experiment 1



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Which of the following sentences best describes the picture(s) above.

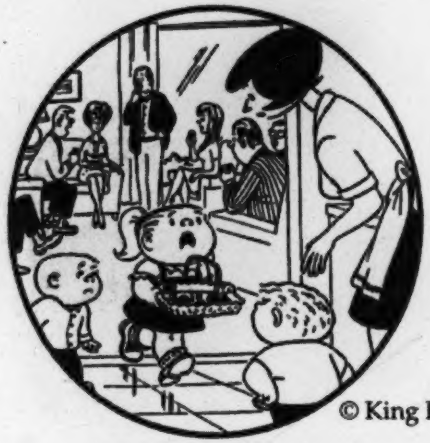
15. a) The father is holding the door open.
    b) Families often go out for dinner.

B2. Sample of Stimuli Used in Experiment 2

B2.1 Instructions

You will be presented with a series of pictures. Listed below each picture or set of pictures are two noun phrases. To ensure accuracy of interpretation, each noun phrase is used in a sample sentence. You are asked to use the words/phrases provided to form ONE simple transitive sentence (subject - verb - object, eg. " *The dog chased the cat*"). If you can not immediately think of a verb, use 'V' in its place and indicate the tense using the morphemes '-s, -ed, -ing' and/or the auxiliary verbs 'can, will, or may'. It is NOT necessary for your sentences to describe the preceding context.

B2.2 Sample Stimulus Item Used in Experiment 2



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6. The living room as in The living room is full of people.
   Some people as in Some people are holding drinks.

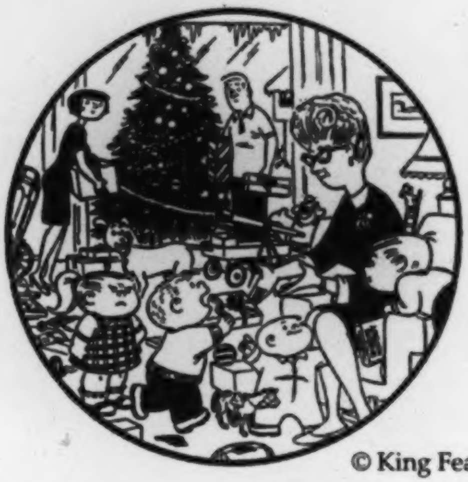
Your Sentence: ______________________________

B3. Sample of Stimuli Used in Experiment 3

B3.1 Instructions

In this booklet, you will be presented with a series of pictures. After each picture or set of pictures, you will be presented with a set of six sentences. For each set of sentences, choose the sentence you feel is the best, i.e., the most acceptable or most natural sounding, and place a '1' in the space beside that sentence. Next choose the sentence you feel is least best, and place a '6' in the space beside that sentence. Of the remaining sentences, choose the sentence you feel is the best and place a '2' in the space beside that sentence. Chose the next least acceptable sentence and place a '5' in the blank beside it. Continue ranking the sentences in this manner until all the sentences have a number in the space beside them. Remember, place only one number in each space and use each number only once for each set of sentences.

B3.2 Sample Stimulus Item Used in Experiment 3



Set 5. © King Features

______ An upstairs window, Christmas lights would brighten up.

______ The grandmother, all Christmas presents would please.

______ Some small windows, Christmas trees can block.

______ A neighbour, Christmas lights repulse.

______ The toy horse, all wagons could carry.

______ Some people, Christmas trees disgust.

B4. Stimuli Used in Experiment 4

B4.1 Instructions

This booklet contains three sections. Each section contains 12 pages. On each of these pages is a typed paragraph of approximately 5-6 sentences. You are asked to continue each of these paragraphs by writing a further 6-8 sentences. The sentences you write should continue the paragraphs in a natural or expected manner. Please complete each of the paragraphs in the order in which they occur. Do not read a paragraph until you are ready to continue it. When continuing a paragraph please do not refer to any other page other than this one. Also, it is asked that you do not discuss the contents of this booklet or your answers with anyone.

B4.2 Stimulus Items with Preposed Objects

1.

Singh stood on the shore watching the speed boats zip around the buoys which marked the course. He wished it was him out there. Keeping his eye on the boats, he moved slowly down the beach. Without looking, he managed to avoid most of the people and towels which littered the beach. A small tidepool, however, he didn't see.

2.

Clara carefully cut and cored an apple before laying it on the tray along with the carrots, crackers, and cold cuts. She had had a long day and was looking forward to sitting down to a light snack and a nice long warm bath. She carried her tray upstairs and set it carefully on the edge of the bathtub. She slid into the warm water and let the tension ease out of her body. She brushed her hand against the plate, tipping it. She grabbed the plate. Unfortunately, some of the carrots, she let slip into the water.

3.

Sung-ye watered her garden. She carefully tended to it every day. In the early spring, she would force some bulbs and begin germinating her bedding plants. In spring, she would transfer them to the flowerbeds scattered amongst the shrubs. Even though she loved her garden, it didn't always grow well because of bugs and poor soil. Pesticides, she didn't approve of.

4.

Gary sat in his car, wishing he had air-conditioning. Traffic was at a standstill and he had already had to wait through three light changes. With his window open, he could smell the exhaust from all the vehicles around him. The light changed red again. Frustrated he honked his horn. A pedestrian, he startled.

5.

Franz worried about many things. Often they were very silly things to worry about. No one cared if he parted his hair on the left or the right, or if he wore short sleeve shirts instead of long sleeve shirts with his sports coat. But Franz thought for sure that his boss did. Some of his neighbours, he didn't care about.

6.

Martin assured the caller that he was making a note of their complaint and would be sure to pass it on to the MLA. Surprisingly, very few constituents ever phoned. When they did, Martin was sure to be polite and respectful even when the caller was abusive and angry. Under no circumstances was he ever to offend a constituent. Reporters, he was also careful not to offend.

7.

It was late when Darcy left the library. It was a pleasant evening, although the sun had gone down, it was still warm. The air smelled faintly of the pine trees which lined the campus paths. As she was walking to her car, she searched her purse for her car keys. Not watching where she was going, she knocked over a garbage can. A raccoon, she surprised.

8.

Carol slowly drove down the street. The houses all had well-manicured lawns and nice straight even driveways. Very few showed any individual style. Most where mid-size bungalows, but there were a few split-levels and even a couple of duplexes. She liked the bungalows most. Some of the colours, though, she disliked.

9.

Steven was glad his friends had come to visit from up north. It had been almost a year since he had seen them last. This was their first trip to the city, though. There were a lot of things they wanted to do and he was looking forward to them all. He liked doing most of the tourist stuff. Museums, he didn't like.

10.

Moving into the new house had been a lot of work for Rachel so far. It had been a little run down when she bought it. She had had to replaster several walls and ceilings and then had repainted the whole place. She had even had to replace the carpet in the livingroom. She was pleased with the results though and was glad to finally start unpacking. She picked up a large box of dishes and headed down the hallway. A mover, she accidentally bumped into as she walked down the hall.

11.

Marnie's work day had started earlier than usual. There had been lots of things to catch-up on. She had been letting things slide for the past three weeks. But she felt she was finally back on track. She still had a lot left to do, though and she was feeling pressured. Some of her afternoon clients, she didn't want to see.

12.

Shane and Lenny had finished their fourth coffee and were getting ready to leave. It was cold outside and it took a few minutes to get their jackets, hats, and scarfs on. Shane could find one of his gloves. He checked his pockets and looked under the table he had been sitting at. He found it stuck in his jacket sleeve. Laughing, they both left the café leaving behind only a couple of dirty mugs. Waiters, they never tipped.

B4.3 Stimulus Items with Existential *There* Sentences

1.

Melanie rested her book on her chest. She liked to flop on her couch and read on rainy afternoons like today. Although she would never admit it, romance novels were her favourite type of book. she was certainly enjoying the one she was reading, but reading always made her sleepy. She shifted about on the couch, trying to get comfortable and drift off to sleep. There was a knock at the door.

2.

It didn't bother Cameron to do laundry. In fact, he looked upon it as a sort of time out from the usually squabbling of evening family life. Five kids made for some very hectic school nights. Folding clothes was much more peaceful. There were some creepy things in the basement though.

3.

Stacy flung her work clothes onto her bed and went over to her closet. She didn't really have very many outfits. She really didn't feel up to going out with her friends tonight. They would go to the same place and do the same thing they did every very night and she rarely enjoyed it. She told herself she had to be more positive. There are some good movies.

4.

Samantha always felt rushed. She always got to work late. She had tried getting up earlier, but that didn't help, she had still gotten to work late. Today she was more rushed then ever. She had misplaced some files she needed that day. Flustered and out of breath she finally arrived at work. There was a new person sitting at her desk.

5.

Although it was only six o'clock in the morning, it was hot in Gary's apartment. Not even a cool shower made him feel more comfortable. Even though it was early on a weekend, Gary could hear the sound of morning traffic. It seemed as if nothing could settle in this heat. Already, there were people at the beach.

6.

Carol and her kids were laughing as they splashed about in the shallow water. After she thought they would go for a small walk through the valley. As a surprise, she had packed a small picnic lunch. She wished she could spend more time with her children, but she needed to work two jobs just to keep pay the bills. Thank god, she thought, her family still enjoyed simple pleasures. There are some kids who need money to have fun.

7.

Simone hated going to the dentist. She had put off making an appointment as long as she could. But she was here now. In fact she had been here in the waiting room for what seemed to be a very long time. She looked around. There was a magazine on the table.

8.

Although it was late, Carla was still awake. She often had bouts of insomnia. She had had them since she was a young woman at college. She got up and looked out the window. There were some storm clouds forming to the west.

9.

If anyone had paid a little bit of attention to the young woman sitting alone in the park, they would have noticed she had been crying. Michelle had only lived in the city for six months and had yet to make any friends nor had she any family. She needed to talk to someone. There were several counselling agencies in the city.

10.

Mark knew he should leave things to the last minute, but he always did. He just felt he worked better under pressure. He had, of course, missed a few deadlines already. His boss had commented on it already. He knew if he didn't finish this report before his boss came back, he would be fired. He looked up from his desk into the central office are. There was a client waiting for him.

11.

As he was exiting the freeway, Richard was trying to remember if he had forgotten anything at the grocery store. He was pretty sure he had remembered everything. He wanted this evening to be perfect. His mind at ease, he turned on to the dead-end lane where he lived. There were reporters in the yard.

12.

A light snowfall had started while Joyce was finishing the last of her Christmas shopping. It had put her in a holiday mood. Although the evening was quite crisp, she decided she would walk home instead. She would call home to let her husband know she would be late. He always worried about her being out at night. There were such things as muggers.

B4.4 Stimulus Items with Transitive Sentences

1.

Sheila stared at the baker working inside the store. She admired the quick confident movement of his hands and the patience he had for his tasks. It was getting colder out and watching him work was making her hungry. Turning away from the window, she saw a five dollar bill.

2.

Martina watched her son playing ball in the backyard. He would be turning seven years old next month, and she had no idea what to do for him. He was a good kid and deserved to have a great birthday, but she didn't have much money. She could afford tickets to a baseball game.

3.

Tyler looked over at the young women sitting near him. He had noticed her looking at him. She was sitting with her friends. He liked that she was quick to laugh at her friends jokes, even though they weren't very funny. In fact, Tyler thought she seemed quite nice and was thinking of going over and introducing himself to her. As he was about to get up, one of her friends offered her a cigarette. Tyler hated cigarettes.

4.

Marge gently swayed on the porch swing. On her lap was an old picture album. She turned the pages slowly, carefully. Each page brought a smile to her face. Not much else did. The home she lived in was a dismal place. Her fingers touched a small piece of paper, long forgotten. The smile slipped from her face. She remembered a tender young man.

5.

Eric sat on his stool behind the counter and stared out the front window. It was a beautiful fall day and he wished he could be outside enjoying it. It seemed everyone else was. He stared at the clock on the wall for what seemed like the twentieth time that day. He was bored and needed something to do. He wanted a customer.

6.

Sylvia bit her tongue as she watched her husband storm out the door. Lately the two of them had been arguing quite a bit. She didn't know what had come over her husband lately. He had become moody and quick tempered and she was getting tired of dealing with it. She envied single women.

7.

Sasha shook the rain off his jacket before hanging it up in the front closet. On his way home from the bus stop he had gotten caught in a downpour and in spite of his overcoat, he had gotten soaked. Even his soaks were wet. As he headed upstairs he looked over at the dinning room table. He noticed a fresh bunch of flowers there.

8.

Celia and Craig were excited about building their new house. After so many years of waiting it was finally going to happen. It was like a dream come true. They had been planning it for years and they knew just what they wanted. Celia wanted a huge garden near the kitchen. Craig wanted lots of windows.

9.

Eddie admired his girlfriend, Julia. He often wondered why she was with him. He would never have thought he was her type. She was outgoing, adventurous , and always seemed at ease in any environment. Not Eddie. He didn't even like high places.

10.

Anthony didn't mind getting up at five o'clock. He thought mornings were a very special time. A time to be enjoyed and not rushed. He turned the coffee maker on and went out into the hall. He was always very quiet in the mornings. Although he enjoyed getting up early in the morning, his wife didn't. He opened the door to get his newspaper. Across the street, he saw a policeman.

11.

For the most part, Ahmed liked his apartment. It was close to where he worked and he wasn't that far from downtown. The rent was cheap and he had a great view of the river valley and the downtown skyline from his livingroom. Unfortunately, he could always hear some neighbour yelling or arguing.

12.

Susan sat in the meeting pretending to be interested in everything that was being discussed. Actually, she hated her job and was thinking about the long weekend. Maybe when she got back she would feel differently. Her and some friends were going to San Francisco. She would have preferred going camping.